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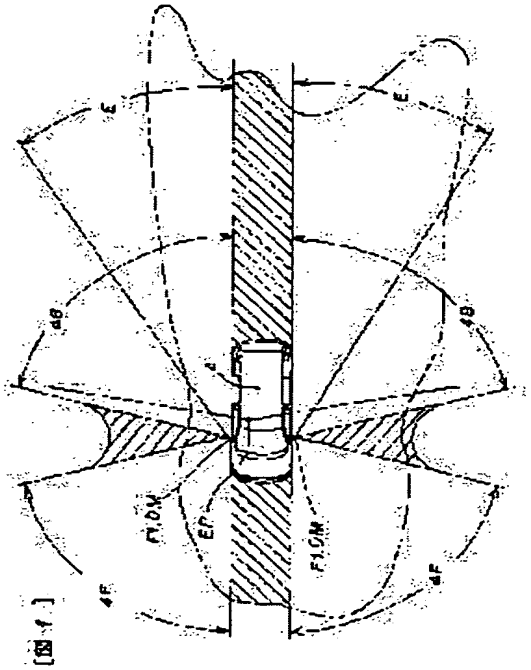
(54) CIRCUMSTANCE CONFIRMING DEVICE FOR AUTOMOBILE

(57)Abstract:
PROBLEM TO BE SOLVED: To catch information in predetermined multi-directions.
SOLUTION: The circumstance confirming device comprises a driving portion 6 fixed to an automobile A, a camera device 4 mounted on rotary shafts 7, 700, 900 driven by the driving portion 6, a monitor device 5 provided in a driving compartment, control switches SW', SW for driving the driving portion 6, and control circuit portions 3, 8 for stopping the camera device 4 at a predetermined position. As a result, operations of the control switches SW', SW and actuations of the control circuit portions 3, 8 stop rotation of the camera device 4 at the predetermined position, so that one camera device 4 can catch information in the predetermined multi-direction.



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CLAIMS

[Claim(s)]

[Claim 1] Circumference check equipment for automobiles characterized by providing the following The mechanical component with which the body of an automobile is equipped The rotation shaft which rotates by the drive of the aforementioned mechanical component Image pck-up equipment which the aforementioned rotation shaft is equipped with, catches the information around the aforementioned automobile, and is changed into a video signal The monitoring device which projects the information around the aforementioned automobile caught by the aforementioned image pck-up equipment as a camera image, the control switch which is made to drive the aforementioned mechanical component and is made to rotate the aforementioned rotation shaft and the aforementioned image pck-up equipment, and the control circuit section which makes a position suspend the rotating aforementioned image pck-up equipment

[Claim 2] The aforementioned position is circumference check equipment for automobiles according to claim 1 characterized by what is been two positions of the front position which catches the information ahead of the aforementioned automobile, and the slanting back position which catches the information behind [slanting] the aforementioned automobile.

[Claim 3] The aforementioned position is circumference check equipment for automobiles according to claim 1 characterized by what is been three positions of the front position which catches the information ahead of the aforementioned automobile, the lower part position which catches the information on the lower part of the aforementioned automobile, and the slanting back position which catches the information behind [slanting] the aforementioned automobile.

[Claim 4] The aforementioned rotation shaft is circumference check equipment for automobiles according to claim 1, 2, or 3 which is the rotation shaft which rotates to the circumference of a horizontal axis, and is characterized by what the image control section which always controls the camera image projected on the aforementioned monitoring device to vertical regularity possesses.

[Claim 5] Circumference check equipment for automobiles according to claim 1, 2, or 3 characterized by what is characterized by providing the following It is the end section by which the aforementioned rotation shaft is a rotation shaft which rotates to the circumference of a normal axis, the aforementioned rotation shaft is equipped with the aforementioned image pck-up equipment through the supporting structure, and the aforementioned supporting structure was fixed to the aforementioned rotation shaft. The other end holding the aforementioned image pck-up equipment The guide section which consists of attachment shafts which attached the aforementioned other end in the circumference of the aforementioned rotation shaft and the shaft in the state of torsion possible [rotation] to the aforementioned end section, and always guides the aforementioned image pck-up equipment to vertical regularity between the aforementioned mechanical component and the aforementioned image pck-up equipment

[Claim 6] It is circumference check equipment for automobiles according to claim 5 which the elastic member intervenes between the aforementioned end section of the aforementioned supporting structure, and the aforementioned other end, and is characterized by what the aforementioned other end is [the thing] always in contact with the aforementioned guide section.

[Claim 7] It is circumference check equipment according to claim 1, 2, or 3 for automobiles carry out what the end section connected with the aforementioned mechanical component and the other end equipped with the aforementioned image pck-up equipment possible [rotation] have bent the aforementioned rotation shaft, and the posture reform equipment which always rotates to vertical regularity in the aforementioned image pck-up equipment with rotation of the aforementioned rotation shaft provides between the aforementioned mechanical component and the aforementioned image pck-up equipment as the feature.

[Claim 8] It is circumference check equipment for automobiles given in the claim 1 which the aforementioned image pck-up equipment always picturizes a part of body, and is characterized by what the aforementioned monitoring device always projects a part of body for, 2, 3, 4, 5, 6, or 7.

[Claim 9] The aforementioned mechanical component is circumference check equipment for automobiles given in the claim 1 characterized by what the mirror base of the door mirror equipment carried in the door of the aforementioned automobile is equipped with, 2, 3, 4, 5, 6, 7, or 8.

[Claim 10] The claim 1 characterized by what the friction clutch mechanism possesses at the aforementioned mechanical component, 2, 3, 4, 5, 6, 7, 8, or circumference check equipment for automobiles given in 9.

[Claim 11] The claim 1 characterized by what the ball clutch mechanism possesses at the aforementioned mechanical component, 2, 3, 4, 5, 6, 7, 8, or circumference check equipment for automobiles given in 9.
[Claim 12] The claim 1 carry out what the water-absorption eradication member infixed between the transparent section in which the aforementioned mechanical component, the aforementioned rotation shaft, and the aforementioned image pck-up equipment were formed on the locus of the aforementioned image pck-up equipment among wrap covering and the aforementioned covering, the transparent aforementioned covering and aforementioned section, and the aforementioned image pck-up equipment provides as the feature, 2, 3, 4, 5, 6, 7, 8, 9, 10, or the circumference check equipment of the publication by 11 for automobiles.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] this invention catches the information around an automobile with image pck-up equipment (for example, camera equipment is called camera equipments, such as CCD camera equipment, and the following), and projects it on a monitoring device as a camera image, and relates to the circumference check equipment for automobiles which checks the surroundings of an automobile, namely, carries out the check-by-looking check of the dead angle around an automobile. Especially this invention relates to the circumference check equipment for automobiles which can catch the information on the many directions predetermined with one camera equipment.
[0002] In this specification, the front means the front it turned [front] to the travelling direction of an automobile from the driver, back means the back it turned [back] to the travelling direction of an automobile from the driver, left-hand side (or method of left-hand side) means the left-hand side (or method of left-hand side) it turned to the travelling direction of an automobile from the driver, and right-hand side (or method of right-hand side) means the right-hand side (or method of right-hand side) it turned to the travelling direction of an automobile from the driver.
[0003]
[Description of the Prior Art] As a means which carries out the check-by-looking check of the dead angle around an automobile, a degree has first the check by looking

by mirror equipment, for example, the door mirror equipment carried at the door of an automobile, etc. with viewing of a driver. However, there is the following fault in viewing of the aforementioned driver, the check by looking by door mirror equipment, etc.

[0004] That is, as shown in drawing 50 (A), (B), and (C), the main dead angles (portion to which the slash in drawing 50 was given) C which cannot carry out direct viewing from the eye point EP of a driver exist in the circumference of Automobile A at the time of a stop. This dead angle C is the range of surrounding of Automobile A. People or the object which exist in this dead angle C cannot be checked by direct viewing from the eye point EP of a driver.

[0005] Moreover, as shown in drawing 51 (A) and (B), main dead angle (portion to which slash in drawing 51 was given) C' which cannot be checked by looking with the door mirror equipment DM carried at the door D of the right-and-left both sides of for example, the automobile A exists in the circumference of Automobile A at the time of a run. This dead angle C' is the range of the method of the right-and-left both sides which can carry out direct viewing from the eye point EP of a driver to the front and the range between the ranges E of back to the slanting back which can be checked by looking with door mirror equipment DM, i.e., the slanting back from the method of right-and-left both sides. Parallel running vehicle A' in this dead angle C' cannot be checked from the eye point EP of a driver by direct viewing and the check by looking by door mirror equipment DM.

[0006] Then, it applied for the circumference check equipment for automobiles (Japanese Patent Application No. No. (JP,7-52710,A) 227827 [five to]) previously. Generally this circumference check equipment for automobiles consists of camera equipment fixed to the body of an automobile, and a monitoring device installed in the driver's seat. And with camera equipment, this circumference check equipment for automobiles is the circumference of an automobile, it catches the information on a predetermined direction, changes it into a video signal, is outputted to a monitoring device, and projects the information on the predetermined direction caught by the camera equipment as a camera image with a monitoring device. Thereby, people, object, and parallel running vehicle which are within the limits of the dead angle in viewing of the aforementioned driver, the check by looking by door mirror equipment, etc. can be checked.

[0007]

[Problem(s) to be Solved by the Invention] However, since camera equipment is being fixed to the body, the aforementioned circumference check equipment for automobiles can catch only the information on one direction with one camera

equipment. Then, in order to catch the information on the many directions, technical problems, like much camera equipments of a base are needed occur.

[0008] this invention is to offer the circumference check equipment for automobiles which can catch the information on the many directions predetermined with one camera equipment.

[0009]

[Means for Solving the Problem] The mechanical component fixed to the body of an automobile in order that this invention may attain the above-mentioned purpose, The rotation shaft which rotates by the drive of the aforementioned mechanical component, and the camera equipment which is fixed to the aforementioned rotation shaft, catches the information around the aforementioned automobile, and is changed into a video signal, The monitoring device which projects the information around the aforementioned automobile caught by the aforementioned camera equipment as a camera image, The aforementioned mechanical component is made to drive and it is characterized by providing the control circuit section which makes a position suspend the aforementioned camera equipment which rotates the aforementioned rotation shaft and the aforementioned camera equipment with the control switch made to rotate between positions.

[0010] Consequently, the circumference check equipment for automobiles of this invention can make a position carry out a rotation halt of the camera equipment through a mechanical component and a rotation shaft by operation of a control switch and the operation of the control circuit section. Thereby, the information on the many directions predetermined with one camera equipment can be caught.

[0011]

[Embodiments of the Invention] Hereafter, seven in the operation gestalt of the circumference check equipment for automobiles of this invention are explained with reference to drawing 1 or drawing 49 . The circumference check equipment for automobiles of this operation gestalt explains concretely that with which the door on the left-hand side of an automobile was equipped. In addition, the door on the right-hand side of an automobile is equipped with the structure with right-and-left reverse. Drawing 1 or drawing 13 shows the 1st operation gestalt of the circumference check equipment for automobiles of this invention. Drawing 50 and drawing 51 , and a same sign show the same thing among drawing.

[0012] The door mirror equipment DM carried in the door D of the right-and-left both sides of Automobile A consists of the mirror base 1 fixed to Door D, and a mirror assembly 2 attached in the mirror base 1 possible [rotation]. This mirror assembly 2 is equipped with the mirror body (not shown) which was attached in the mirror housing

20 and its mirror housing 20 possible [tilting] vertically and horizontally through the power unit (not shown), and has been arranged at opening of the mirror housing 20.

[0013] In the aforementioned mirror base 1, equipment fixation of the mechanical component 6 is carried out. This mechanical component 6 possesses the case 6 fixed to the mirror base 1 by the screw etc., and the reducer style (not shown) attached in the output shaft of the motor M which was contained in the case 60, and which is mentioned later, and its motor M.

[0014] The end of the rotation shaft 7 is attached in the reducer style of the aforementioned mechanical component 6. This rotation shaft 7 rotates to the circumference of horizontal-axis H-H by the drive of a mechanical component 6. The camera equipment 4 which consists of a CCD camera is being fixed to the other end of this rotation shaft 7 through the supporting structure 70 as a camera electrode holder.

[0015] This camera equipment 4 catches the information around Automobile A, changes it into a video signal, and it has the field angle which can check by looking the range 400 shown in drawing. In addition, a wide angle lens may be used. The camera angle of this camera equipment 4 inclines to the aforementioned rotation shaft 7 (horizontal-axis H-H) through the aforementioned supporting structure 70. Consequently, camera equipment 4 will always picturize a part of body of Automobile A. In addition, the detail of the aforementioned supporting structure 70 is later mentioned with reference to drawing 37 (supporting structure 701) and drawing 43 (supporting structure 707).

[0016] The aforementioned mechanical component 6, the rotation shaft 7, and camera equipment 4 are covered by the opaque covering 100. This covering 100 consists of the base covering 101 of the aforementioned door mirror equipment DM, a thing of one, or a thing of another object. On tracing of the aforementioned camera equipment 4, the area pellucida 102 of a tabular is formed among this covering 100.

[0017] the instrument panel (not shown) near the driver's seat of Automobile A on the other hand etc. -- the monitoring device 5 is mostly installed in the center This monitoring device 5 projects on a screen the information around the automobile A caught by the aforementioned camera equipment 4 as a camera image, as shown in drawing 9 .

[0018] In drawing 8 and drawing 10 , or drawing 13 , SW' is a control switch which is made to drive the aforementioned mechanical component 6 and is made to rotate between two positions of a front position (position shown with the alternate long and short dash line in drawing 3 or drawing 7), and a back position (position shown as the solid line in drawing 3 or drawing 7) for the rotation shaft 7 and camera equipment 4.

This control switch SW' is the switch of 2 ******, and consists of two traveling contacts 410 and 420, the 1st two stationary contact 411 and 421, and the 2nd two stationary contact 412 and 422. These two traveling contacts 410 and 420 interlock mutually. Moreover, one 1st stationary contact 411 and the 2nd stationary contact 422 of another side are connected to Dc-battery (power supply) B, respectively. Furthermore, one 2nd stationary contact 412 and the 1st stationary contact 421 of another side are connected to the gland, respectively (ground).

[0019] In drawing 8 , SW1 is the 4 direction circuit changing switch, and is a remote control switch to which the aforementioned mirror body is made to tilt vertically and horizontally to the mirror housing 20. Moreover, SW2 is a 2-way circuit changing switch, and is a switch which chooses four-directions tilting of the right-hand side mirror body and four-directions tilting of the left-hand side mirror body. Furthermore, SW3 is a 2-way circuit changing switch, and is a switch whose two positions of the operating position and storing position carry out a rotation halt of between two positions of an operating position (position shown with the two-dot chain line in drawing 5), and a storing position (position shown with the dashed line in drawing 5), and are made to suspend the mirror assembly 2 of the door mirror equipment DM of right-and-left both sides. These switches SW1, and SW2 and SW3 and aforementioned control switch SW' are contained by one switching and balancing box.

[0020] In drawing 10 or drawing 13 , 8 is the control circuit section. This control circuit section 8 makes two positions of a position, i.e., the aforementioned front position and the aforementioned back position, suspend the aforementioned camera equipment 4. This control circuit section 8 is equipped with the brush 80 as one traveling contact, and the current carrying part 81 as three stationary contacts, i.e., the 1st current carrying part, the 2nd current carrying part 82 and the 3rd current carrying part 83.

[0021] The aforementioned brush 80 is being fixed to the rotating disc 84. It is fixed to the aforementioned rotation shaft 7, and this rotating disc 84 carries out interlocking rotation with the rotation shaft 7 and camera equipment 4. The aforementioned brush 80 consists of conductive sheet metal, and the shape of a typeface of E is prepared in the traveling contact (not shown) at the nose of cam of nothing and its 3 **, respectively. This three traveling contact carries out slide electric conduction at the three aforementioned current carrying parts 81, 82, and 83, respectively.

[0022] The three aforementioned current carrying parts 81, 82, and 83 are formed in the fixed side 60, for example, the case of a mechanical component 6. These three current carrying parts 81, 82, and 83 consist of conductive sheet metal, and make three-fold annulus ring configuration in the state where it was isolated mutually. In addition, the center of this three-fold annulus ring configuration is on the center of

rotation of the aforementioned rotating disc 84, i.e., normal-axis H-H and this heart. The 1st current carrying part 81 of the above is located outside, and the annulus ring configuration of 1/about 3 is connected to one traveling contact 410 of aforementioned control switch SW' through nothing and the 1st diode D1. The 2nd current carrying part 82 of the above is located inside, and the annulus ring configuration is connected to the traveling contact 420 of another side of aforementioned control switch SW' through the motor M of nothing and the aforementioned mechanical component 6. The 3rd current carrying part 83 of the above is located in the middle, and the annulus ring configuration of 2/about 3 is connected to one traveling contact 410 of aforementioned control switch SW' with the 1st current carrying part 81 of the above through nothing and the 2nd diode D2.

[0023] And if camera equipment 4 rotates between a front position and back positions to the case of this operation gestalt, i.e., the operation gestalt which the rotation shaft 7 rotates to the circumference of horizontal-axis H-H, the sense of the vertical direction of camera equipment 4 will become reverse. For this reason, in the aforementioned monitoring device, the image control section (not shown) which always controls the camera image to project to vertical regularity possesses. this image control section -- for example, the signal of a timer and a control switch -- the drive circuit (not shown) of a monitoring device 5 -- it is -- the display of a camera image -- always -- the upper and lower sides -- it switches so that it may become fixed

[0024] The circumference check equipment F1 for automobiles of this invention in this 1st operation gestalt consists of composition like a not less, and explains the operation operation hereafter. First, when camera equipment 4 is located in a back position, the control circuit section 8 is in the state which shows in drawing 10 . At this time, camera equipment 4 projects on the screen of a monitoring device 5 the information which caught the information on back range 4B from the right-and-left both sides of Automobile A, and was caught by this camera equipment 4 as a camera image with a part of body of Automobile A, as shown in drawing 9 (B). In this case, since back range 4B can be checked by looking from the right-and-left both sides of Automobile A, the check-by-looking range of door mirror equipment DM is compensated, and it can check by looking more widely than the check-by-looking range of the door mirror equipment DM, consequently is the the best for the unification in a highway etc. Moreover, the detection check of a parallel running vehicle can be performed at the time of a run.

[0025] Next, as the alternate long and short dash line in drawing 8 shows, the knob 400 of control switch SW' is changed from a back position to a front position. Then, as

shown in drawing 11 , two traveling contacts 410 and 420 of control switch SW' change and connect with the 2nd stationary contact 412 and 422 from the 1st stationary contact 411 and 421. consequently, the current from Dc-battery B is shown in the arrow in drawing 11 -- as -- the traveling contact 420 -> motor M-> 2nd current carrying part 82 of 2nd stationary-contact 422 -> another side of another side of control switch SW' -- -> brush 80 -> 3rd current-carrying-part 83 -> 2nd diode D2 -> one 2nd stationary-contact 412 -> gland of traveling contact 410 -> one -- flowing -- the motor M of a mechanical component 6 -- for example, it rotates normally By normal rotation of this motor M, camera equipment 4 rotates through the rotation shaft 7 in the front of an alternate long and short dash line arrow, i.e., the direction in drawing 3 . A brush 80 rotates in the direction of a solid line arrow in drawing 11 with rotation of this camera equipment 4.

[0026] If the aforementioned camera equipment 4 is located in a front position, it is located in the position which the brush 80 separated from the edge of the 3rd current carrying part 83 a little as shown in drawing 12 . consequently, the traveling contact 420 -> motor M-> 2nd current carrying part 82 of 2nd stationary-contact 422 -> another side of another side of aforementioned control switch SW' -- the circuit of -> brush 80 -> 3rd current-carrying-part 83 -> 2nd diode D2 -> one 2nd stationary-contact 412 -> gland of traveling contact 410 -> one becomes open Thereby, normal rotation of Motor M stops and camera equipment 4 is located in the front position shown with an alternate long and short dash line. At this time, camera equipment 4 projects on the screen of a monitoring device 5 the information which caught the front information on range 4F from the right-and-left both sides of Automobile A, and was caught by this camera equipment 4 as a camera image with a part of body of Automobile A, as shown in drawing 9 (A). In this case, the detection check of the obstruction of the front fender circumference can do ****** etc. at the time.

[0027] Moreover, as the solid line in drawing 8 shows, the knob 400 of control switch SW' is changed from a front position to a back position. Then, as shown in drawing 13 , two traveling contacts 410 and 420 of control switch SW' change and connect with the 1st stationary contact 411 and 421 from the 2nd stationary contact 412 and 422. consequently, the current from Dc-battery B is shown in the arrow in drawing 13 -- as -- one the traveling contact 410 -> 1st diode D1 -> 1st current carrying part of 1st stationary-contact 411 -> one [of control switch SW'] -- the 1st stationary-contact 421 -> gland of traveling contact 420 -> another side of 81 -> brush 80 -> 2nd current-carrying-part 82 -> motor M-> another side -- flowing -- the motor M of a mechanical component 6 -- for example, it reverses By the inversion of this motor M,

camera equipment 4 rotates through the rotation shaft 7 in the back of a solid line arrow, i.e., the direction in drawing 3 . A brush 80 rotates in the direction of a solid line arrow in drawing 13 with rotation of this camera equipment 4.

[0028] If the aforementioned camera equipment 4 is located in a back position, it is located in the position which the brush 80 separated from the edge of the 1st current carrying part 81 a little as shown in drawing 10 . 1st stationary-contact 411 -> one [of aforementioned control switch SW'] traveling contact 410 -> consequently, the 1st diode D1 -> the circuit of the 1st stationary-contact 421 -> gland of traveling contact 420 -> another side of 81 -> brush 80 -> 2nd current-carrying-part 82 -> motor M-> another side becomes open the 1st current carrying part. Thereby, the inversion of Motor M stops and camera equipment 4 is located in the back position shown as a solid line.

[0029] Thus, by operation of control switch SW', and operation of the control circuit section 8, camera equipment 4 can rotate between two positions of a back position and a front position through a mechanical component 6 and the rotation shaft 7, and it can be stopped in two positions of the back position and front position by the circumference check equipment F1 for automobiles of this invention in this 1st operation gestalt. Consequently, as shown in drawing 1 , the information on the ranges 4B and 4F of a 2-way predetermined with one camera equipment 4 can be caught. It can be made by this smaller than the range C of the dead angle which shows the range of a dead angle (portion to which the slash in drawing 1 was given) to drawing 50 (A) and drawing 51 (A), and C', and the part and a safety operation can be performed. And since move tracing of camera equipment 4 is in agreement with rotation tracing of the mirror assembly 2 in the case of what carried camera equipment 4 in the mirror assembly 2 of door mirror equipment DM, as compared with this thing, a free setup of the move tracing of camera equipment 4 can be carried out.

[0030] Especially, in this 1st operation gestalt, since operation of a drive system is only the rotation round trip of a driving shaft 7 through rotation of the motor M of a mechanical component 6, and a reducer style, there is no complicated movement and mitigation-izing of the part and the part mark of a drive system and improvement in the reliability of a drive system are achieved.

[0031] Moreover, in this 1st operation gestalt, there is no possibility that sense of incongruity may be given to a driver by the image control section since a camera image always projects on a monitoring device 5 at vertical regularity.

[0032] Furthermore, in this 1st operation gestalt, since a part of body of Automobile A has always projected on the monitoring device 5 as shown in drawing 9 , the relative-position relation between the body and an object can be checked.

[0033] Since the circumference check equipment F1 for automobiles of this invention is being fixed to the mirror base 1 of door mirror equipment DM in this 1st operation gestalt, as compared with what carries camera equipment 4 in the mirror assembly of door mirror equipment DM, blurring of camera equipment 4, i.e., blurring of the camera image of a monitoring device 5, can be prevented further again.

[0034] Drawing 14 or drawing 29 shows the 2nd operation gestalt of the circumference check equipment for automobiles of this invention. Drawing 1 or drawing 13 , drawing 50 and drawing 51 , and a same sign show the same thing among drawing. The circumference check equipment F2 of this invention in this 2nd operation gestalt for automobiles rotates between the aforementioned front position (the position shown with the alternate long and short dash line in drawing 16 or drawing 20), a lower part position (the position shown with the two-dot chain line in drawing 16 or drawing 20), and three positions with the aforementioned back position (the position shown as the solid line in drawing 16 or drawing 20), and stops camera equipment 4 in the three positions. The control switch SW which mentions the circumference check equipment F2 for automobiles in this 2nd operation gestalt later as compared with the circumference check equipment F1 for automobiles in the aforementioned 1st operation gestalt differs from the control circuit section 3.

[0035] The aforementioned control switch SW is 3 position circuit changing switch, and as shown in drawing 23 or drawing 29 , it consists of one traveling contact 41 connected to Dc-battery (power supply) B, and three stationary contacts 42, i.e., the 1st stationary contact, the 2nd stationary contact 43 and the 3rd stationary contact 44. This control switch SW rotates between three positions of a front position, a lower part position, and a back position for the aforementioned camera equipment 4. This control switch SW is contained by one switching and balancing box with other switches SW1, SW2, and SW3, as shown in drawing 21 .

[0036] Moreover, the aforementioned control circuit section 3 consists of 2 sets of relay circuits RC1 and RS1, and RC2 and RS2 as [show / in drawing 23 or drawing 29]. / two current carrying parts 300 and 301 and two current carrying parts 300, five brushes 31, 32, 33, 34 and 35 which carry out the slide electric conduction of the 301 tops, and This control circuit section 3 makes three positions of a front position, a lower part position, and a back position suspend the aforementioned camera equipment 4.

[0037] The two aforementioned current carrying parts 301 [300 and] 300, i.e., the 1st current carrying part, and the 2nd current carrying part 301 are formed in the aforementioned rotating disc 84. These two current carrying parts 300 and 301 consist for example, of electric conduction sheet metal, and make the circular

configuration in the state where it was isolated mutually. Between these two current carrying parts 300 and 301, the dead air space 302 corresponding to a lower part position, the dead air space 303 corresponding to a front position, and the dead air space 304 corresponding to a back position are formed, respectively. The distance from center-of-rotation (it is on the center of rotation of aforementioned rotating disc 84, i.e., normal-axis H-H and this heart) O' of two current carrying parts 300 and 301 differs, respectively, and the interval which is about 90 degrees is opening this lower part position dead air space 302, the front position dead air space 303, and the back position dead air space 304.

[0038] the 2 aforementioned sets of relay circuits -- the [the 1st relay coil RC1, 1st relay contact RS1, and] -- it consists of a 2 relay coil RC2 and 2nd relay contact RS2 the [this 1st relay contact RS1 and] -- 2 relay contact RS2 consists of the 2nd stationary contact, one traveling contacts 11 and 21, and the two stationary contacts 12 and 22, i.e., 1st stationary contact, 13 and 23 The traveling contact 11 of the 1st relay of the above is connected to the end of the aforementioned motor M, and the traveling contact 21 of the 2nd relay of the above is connected to the other end of the aforementioned motor M. These traveling contacts 11 and 21 are connected to 2nd stationary-contact 13 and 23 side when it connects with 1st stationary-contact 12 and 22 side when the relay coils RC1 and RC2 are in a non-operating state (a demagnetization state, i.e., a normal state), and the relay coils RC1 and RC2 are in an operating state (excitation state). This 1st stationary contact 12 and 22 is connected to the gland, respectively (ground), and, on the other hand, the 2nd stationary contact 13 and 23 is connected to Dc-battery B, respectively.

[0039] Among the five aforementioned brushes, the 1st brush 31 always contacts the 1st current carrying part 300, and is connected to the gland through the 1st relay coil RC1. The 2nd brush 32 contacts the 1st current carrying part 300, and corresponds to the front position dead air space 303, and is connected to the 1st stationary contact 42 of the control switch SW. The 3rd brush 33 contacts the 1st current carrying part 300 or the 2nd current carrying part 301, and corresponds to the lower part position dead air space 302, and is connected to the 2nd stationary contact 43 of the control switch SW. The 4th brush 34 contacts the 2nd current carrying part 301, and corresponds to the back position dead air space 303, and is connected to the 3rd stationary contact 44 of the control switch SW. The 5th brush 35 always contacts the 2nd current carrying part 301, and is connected to the gland with the 1st brush 31 through the 2nd relay coil RC2.

[0040] The circumference check equipment F2 for automobiles of this invention in this 2nd operation form consists of composition like a not less, and explains the

operation operation hereafter. First, when camera equipment 4 is located in a lower part position, the control circuit section 3 is in the state which shows in drawing 23 . At this time, camera equipment 4 projects on the screen of a monitoring device 5 the information which caught the information on range 4D of the lower part of the right-and-left both sides of Automobile A, and was caught by this camera equipment 4 as a camera image with a part of body of Automobile A, as shown in drawing 22 (B). In this case, the detection check of the obstruction around just under the right-and-left both sides of Automobile A can do ****** etc. at the time.

[0041] Next, as the alternate long and short dash line in drawing 21 shows, the knob 40 of the control switch SW is changed from a lower position to a front position. Then, as shown in drawing 24 , the traveling contact 41 of the control switch SW changes and connects with the 1st stationary contact 42 from the 2nd stationary contact 43. consequently, the current from Dc-battery B is shown in the arrow in drawing 24 -- as -- traveling contact 41 -> 1st stationary-contact 42 -> 2nd brush 32-> of the control switch SW -- it flows with a 1st current-carrying-part 300 -> 1st brush 31 -> 1st relay coil RC1 -> gland For this reason, the 1st relay coil RC1 will be excited, it will be in an operating state, and the traveling contact 11 of 1st relay contact RS1 changes and connects with the 2nd stationary contact 13 from the 1st stationary contact 12 in connection with this. Thereby, as the current from Dc-battery B is shown in the arrow in drawing 24 , it flows to the traveling contact 21 -> 1st stationary-contact 22 -> gland of the 2nd stationary-contact 13 -> traveling contact 11 -> motor M-> 2nd relay contact SW2 of the 1st relay contact SW1, and Motor M rotates normally, for example. By normal rotation of this motor M, camera equipment 4 rotates in the front of an alternate long and short dash line arrow, i.e., the direction in drawing 16 . Current carrying parts 300 and 301 rotate in the direction of a solid line arrow in drawing 24 with rotation of this camera equipment 4.

[0042] If the aforementioned camera equipment 4 is located in a front position, as shown in drawing 25 , the 2nd brush 32 is located in the front position dead air space 303 of current carrying parts 300 and 301. Traveling contact 41 -> 1st stationary-contact of aforementioned control switch SW 42 -> consequently, the 2nd brush 32 -> the circuit of a 1st current-carrying-part 300 -> 1st brush 31 -> 1st relay coil RC1 -> gland becomes open, and the 1st relay coil RC1 will be demagnetized and it will be in a non-operating state. Thereby, the traveling contact 11 of 1st relay contact RS1 changes and connects with the 1st stationary contact 12 from the 2nd stationary contact 13. For this reason, the circuit of the traveling contact 21 -> 1st stationary-contact 22 -> gland of the 2nd stationary-contact 13 -> traveling contact 11 -> motor M-> 2nd relay contact SW2 of the 1st relay contact SW1 of the above

becomes open, normal rotation of Motor M stops, and camera equipment 4 is located in the front position shown with the alternate long and short dash line in drawing 16 or drawing 20 in connection with this. At this time, camera equipment 4 projects on the screen of a monitoring device 5 the information which caught the front information on range 4F from the right-and-left both sides of Automobile A, and was caught by this camera equipment 4 as a camera image with a part of body of Automobile A, as shown in drawing 22 (A). In this case, the detection check of the obstruction of the front fender circumference can do ****** etc. at the time.

[0043] Moreover, the knob 40 of the control switch SW is made to slide to a lower position from a front position, as the two-dot chain line in drawing 21 shows. Then, as shown in drawing 26 , the traveling contact 41 of the control switch SW changes and connects with the 2nd stationary contact 43 from the 1st stationary contact 42. consequently, the current from Dc-battery B is shown in the arrow in drawing 26 -- as -- traveling contact 41 -> 2nd stationary-contact 43 -> 3rd brush 33-> of the control switch SW -- it flows with a 2nd current-carrying-part 301 -> 5th brush 35 -> 2nd relay coil RC2 -> gland For this reason, the 2nd relay coil RC2 will be excited, it will be in an operating state, and the traveling contact 21 of 2nd relay contact RS2 changes and connects with the 2nd stationary contact 23 from the 1st stationary contact 22 in connection with this. Thereby, as the current from Dc-battery B is shown in the arrow in drawing 26 , it flows to the traveling contact 11 -> 1st stationary-contact 12 -> gland of the 2nd stationary-contact 23 -> traveling contact 21 -> motor M-> 1st relay contact SW1 of the 2nd relay contact SW2, and Motor M is reversed, for example. By the inversion of this motor M, camera equipment 4 rotates in the back of a two-dot chain line arrow, i.e., the direction in drawing 16 . Current carrying parts 300 and 301 rotate in the direction of a solid line arrow in drawing 26 with rotation of this camera equipment 4.

[0044] If the aforementioned camera equipment 4 is located in a lower part position, as shown in drawing 23 , the 3rd brush 33 is located in the lower part position dead air space 302 of current carrying parts 300 and 301. Traveling contact 41 -> 2nd stationary-contact of aforementioned control switch SW 43 -> consequently, the 3rd brush 33 -> the circuit of a 2nd current-carrying-part 301 -> 5th brush 35 -> 2nd relay coil RC2 -> gland becomes open, and the 2nd relay coil RC2 will be demagnetized and it will be in a non-operating state. Thereby, the traveling contact 21 of 2nd relay contact RS2 changes and connects with the 1st stationary contact 22 from the 2nd stationary contact 23. For this reason, the circuit of the traveling contact 11 -> 1st stationary-contact 12 -> gland of the 2nd stationary-contact 23 -> traveling contact 21 -> motor M-> 1st relay contact SW1 of the 2nd relay contact

SW2 of the above becomes open, the inversion of Motor M stops, and camera equipment 4 is located in the lower part position shown with the two-dot chain line in drawing 16 or drawing 20 in connection with this.

[0045] On the other hand, the knob 40 of the control switch SW is made to slide to a back position from a lower position, as the solid line in drawing 21 shows. Then, as shown in drawing 27 , the traveling contact 41 of the control switch SW changes and connects with the 3rd stationary contact 44 from the 2nd stationary contact 43. consequently, the current from Dc-battery B is shown in the arrow in drawing 27 -- as -- traveling contact 41 -> 3rd stationary-contact 44 -> 4th brush 34-> of the control switch SW -- it flows with a 2nd current-carrying-part 301 -> 5th brush 35 -> 2nd relay coil RC2 -> gland For this reason, the 2nd relay coil RC2 will be excited, it will be in an operating state, and the traveling contact 21 of 2nd relay contact RS2 changes and connects with the 2nd stationary contact 23 from the 1st stationary contact 22 in connection with this. Thereby, as the current from Dc-battery B is shown in the arrow in drawing 27 , it flows to the traveling contact 11 -> 1st stationary-contact 12 -> gland of the 2nd stationary-contact 23 -> traveling contact 21 -> motor M-> 1st relay contact SW1 of the 2nd relay contact SW2, and Motor M is reversed, for example. By the inversion of this motor M, camera equipment 4 rotates in the back of a solid line arrow, i.e., the direction in drawing 16 . Current carrying parts 300 and 301 rotate in the direction of a solid line arrow in drawing 27 with rotation of this camera equipment 4.

[0046] If the aforementioned camera equipment 4 is located in a back position, as shown in drawing 28 , the 4th brush 34 is located in the back position dead air space 304 of current carrying parts 300 and 301. Traveling contact 41 -> 3rd stationary-contact of aforementioned control switch SW 44 -> consequently, the 4th brush 34 -> the circuit of a 2nd current-carrying-part 301 -> 5th brush 35 -> 2nd relay coil RC2 -> gland becomes open, and the 2nd relay coil RC2 will be demagnetized and it will be in a non-operating state. Thereby, the traveling contact 21 of 2nd relay contact RS2 changes and connects with the 1st stationary contact 22 from the 2nd stationary contact 23. For this reason, the circuit of the traveling contact 11 -> 1st stationary-contact 12 -> gland of the 2nd stationary-contact 23 -> traveling contact 21 -> motor M-> 1st relay contact SW1 of the 2nd relay contact SW2 of the above becomes open, the inversion of Motor M stops, and camera equipment 4 is located in the back position shown as the solid line in drawing 16 or drawing 20 in connection with this. At this time, camera equipment 4 projects on the screen of a monitoring device 5 the information which caught the information on back range 4B from the right-and-left both sides of Automobile A, and was caught by this

camera equipment 4 as a camera image with a part of body of Automobile A, as shown in drawing 9 (B). In this case, since back range 4B can be checked by looking from the right-and-left both sides of Automobile A, the check-by-looking range of door mirror equipment DM is compensated, and it can check by looking more widely than the check-by-looking range of the door mirror equipment DM, consequently is the the best for the unification in a highway etc. Moreover, the detection check of a parallel running vehicle can be performed at the time of a run.

[0047] Moreover, the knob 40 of the control switch SW is made to slide to a lower position from a back position, as the two-dot chain line in drawing 21 shows. Then, as shown in drawing 29 , the traveling contact 41 of the control switch SW changes and connects with the 2nd stationary contact 43 from the 3rd stationary contact 44. consequently, the current from Dc-battery B is shown in the arrow in drawing 29 -- as -- traveling contact 41 -> 2nd stationary-contact 43 -> 3rd brush 33-> of the control switch SW -- it flows with a 1st current-carrying-part 300 -> 1st brush 31 -> 1st relay coil RC1 -> gland For this reason, the 1st relay coil RC1 will be excited, it will be in an operating state, and the traveling contact 11 of 1st relay contact RS1 changes and connects with the 2nd stationary contact 13 from the 1st stationary contact 12 in connection with this. Thereby, as the current from Dc-battery B is shown in the arrow in drawing 29 , it flows to the traveling contact 21 -> 1st stationary-contact 22 -> gland of the 2nd stationary-contact 13 -> traveling contact 11 -> motor M-> 2nd relay contact SW2 of the 1st relay contact SW1, and Motor M rotates normally, for example. By normal rotation of this motor M, camera equipment 4 rotates in the front of a two-dot chain line arrow, i.e., the direction in drawing 16 . Current carrying parts 300 and 301 rotate in the direction of a solid line arrow in drawing 29 with rotation of this camera equipment 4.

[0048] If the aforementioned camera equipment 4 is located in a lower part position, as shown in drawing 23 , the 3rd brush 33 is located in the lower part position dead air space 302 of current carrying parts 300 and 301. Traveling contact 41 -> 2nd stationary-contact of aforementioned control switch SW 43 -> consequently, the 3rd brush 33 -> the circuit of a 1st current-carrying-part 300 -> 1st brush 31 -> 1st relay coil RC1 -> gland becomes open, and the 1st relay coil RC1 will be demagnetized and it will be in a non-operating state. Thereby, the traveling contact 11 of 1st relay contact RS1 changes and connects with the 1st stationary contact 12 from the 2nd stationary contact 13. For this reason, the circuit of the traveling contact 21 -> 1st stationary-contact 22 -> gland of the 2nd stationary-contact 13 -> traveling contact 11 -> motor M-> 2nd relay contact SW2 of the 1st relay contact SW1 of the above becomes open, normal rotation of Motor M stops, and camera equipment 4 is located

in the lower part position shown with the two-dot chain line in drawing 16 or drawing 20 in connection with this.

[0049] Thus, by operation of the control switch SW and operation of the control circuit section 3, camera equipment 4 can rotate between three positions of a front position, a lower part position, and a back position through a mechanical component 6 and the rotation shaft 7, and it can be stopped by the circumference check equipment F2 for automobiles of this invention in this 2nd operation gestalt in three positions of the front position, lower part position, and back position. Consequently, as shown in drawing 14 , range 4B of three directions predetermined with one camera equipment 4 and the information on 4D and 4F can be caught. It can be made by this smaller than the range C of the dead angle which shows the range of a dead angle (portion to which the slash in drawing 14 was given) to drawing 50 (A) and drawing 51 (A), and C', and the part and a safety operation can be performed. Moreover, the thing of this 2nd operation gestalt can attain the same operation effect as the thing of the above-mentioned 1st operation gestalt.

[0050] Drawing 30 or drawing 37 shows the 3rd operation gestalt of the circumference check equipment for automobiles of this invention. Drawing 1 or drawing 29 , drawing 50 and drawing 51 , and a same sign show the same thing among drawing. In case the circumference check equipment F3 for automobiles of this invention in this 3rd operation gestalt rotates between three positions of two positions of a front position and a back position or a front position, a lower part position, and a back position and stops camera equipment 4 in the two positions or three positions, it mechanical always holds the vertical posture of the camera equipment 4 uniformly. The rotation shaft 700 and the supporting structure 701 which mention the circumference check equipment F3 for automobiles in this 3rd operation gestalt later as compared with the thing F1 of the aforementioned 1st operation gestalt and the thing F2 of the 2nd operation gestalt differ from each other, and the guide section 61 is added.

[0051] The aforementioned rotation shaft 700 rotates to the circumference of normal-axis V-V through Motor M and the reducer style of a mechanical component 6. The aforementioned supporting structure 701 consists of attachment shafts 705 which attached the aforementioned other end 704 in the circumference of the aforementioned rotation shaft 700 and the shaft in the state of torsion possible [rotation] to the end section 703 which stopped on the rotation shaft 700 and was fixed with the screw 702, the other end 704 holding the aforementioned camera equipment 4, and the aforementioned end section 703, as shown in drawing 37 . In addition, the end section 703 consists of a body which fits into the rotation shaft 700, and a mounting bracket prepared in the body at one. the two forks prepared in square

Itabe to whom the other end 704 fixes camera equipment 4 on a screw etc., the shank prepared for the square Itabe at one, and its shank on the other hand at one — it consists of a bracket

[0052] the guide to which the aforementioned guide section 61 was fixed to the case 60 of the aforementioned mechanical component 6 — a member 62 and its guide — it consists of a guide slot 63 established in the member 62 The other end 704 of the aforementioned supporting structure 701 has fitted in possible [a slide] all over this guide slot 63. And as shown in the development of drawing 36 , this guide slot 63 makes a semicircle so that between three positions of a front position, a lower part position, and a back position may be rotated and the three positions may be made to suspend the aforementioned camera equipment 4 through the supporting structure 701.

[0053] The circumference check equipment F3 for automobiles of this invention in this 3rd operation gestalt Since it consists of composition like a not less, like the thing F2 of the above-mentioned 2nd operation gestalt by operation of the control switch SW and operation of the control circuit section 3 camera equipment 4 can rotate between three positions of a front position, a lower part position, and a back position through a mechanical component 6, the rotation shaft 700, and **** right [that] ** 701, and it can stop in the three positions The thing F3 of this 3rd operation gestalt can attain the same operation effect as the thing F1 of the aforementioned 1st operation gestalt, and the thing F2 of the 2nd operation gestalt.

[0054] In case the rotation shaft 700 rotates to the circumference of normal-axis V-V at a longitudinal direction (horizontal), especially the thing F3 of this 3rd operation gestalt by guide operation of the guide section 61 Since camera equipment 4 rotates in the vertical direction (perpendicular direction) to the circumference of the rotation shaft 700 (normal-axis V-V) and the attachment shaft 705 (horizontal axis) in the state of torsion, the vertical posture of camera equipment 4 will mechanical always be held uniformly. Consequently, the thing F3 of this 3rd operation gestalt can always make vertical regularity the camera image projected on a monitoring device 5, without the above-mentioned 1st operation gestalt's reaching thing F1, and using an image control section like the thing F2 of the 2nd operation gestalt, and a possibility that sense of incongruity may be given to a driver does not have it.

[0055] Drawing 38 or drawing 40 shows the modification of the above-mentioned 3rd operation gestalt. Drawing 1 or drawing 37 , drawing 50 and drawing 51 , and a same sign show the same thing among drawing. as for the thing of this modification, the coil spring 706 as an elastic member intervenes between the end section 703 of the supporting structure 701, and the other end 704 — having — **** — the

aforementioned other end 704 -- the guide of the guide section 610 -- it is always in contact with the guide rail 630 prepared in the member 620 Since the other end 704 to which camera equipment 4 was fixed is always contacted by the guide rail 630 of a fixed side according to the spring force of a coil spring 706, the thing of this modification can prevent blurring of camera equipment 4 certainly.

[0056] Drawing 41 or drawing 43 shows the 4th operation gestalt of the circumference check equipment for automobiles of this invention. Drawing 1 or drawing 40 , drawing 50 and drawing 51 , and a same sign show the same thing among drawing. The circumference check equipment F4 for automobiles of this invention in this 4th operation gestalt mechanical always holds the vertical posture of camera equipment 4 uniformly like the thing F3 of the above-mentioned 3rd operation gestalt. The rotation shaft 900 and the supporting structure 707 which mention the thing F4 of this 4th operation gestalt later as compared with the thing F1 of the aforementioned 1st operation gestalt, the thing F2 of the 2nd operation gestalt, and the thing F3 of the 3rd operation gestalt differ from each other, and the posture orthodontic appliance 9 is added.

[0057] The end section connected with the aforementioned mechanical component 6 and the other end equipped with the aforementioned camera equipment 4 possible [rotation] have bent the aforementioned rotation shaft 900. The aforementioned supporting structure 707 consists of square Itabe who fixed camera equipment 4 by 708, such as a screw. This supporting structure 707 is attached in the other end of the aforementioned rotation shaft 900 possible [rotation] with the ring 709. The 1st bevel gear 91 in which the aforementioned posture orthodontic appliance 9 was infixed between the aforementioned mechanical component 6, the aforementioned camera equipment 4, and the supporting structure 707, it was fixed to the aforementioned mechanical component 6, and the end section of the rotation shaft 900 was inserted possible [rotation], It is fixed to the aforementioned supporting structure 707, and the other end of the rotation shaft 900 consists of the 2nd bevel gear 92 inserted in possible [rotation], and the 1st bevel gear 91 of the above and the 2nd bevel gear 92 of the above mesh mutually.

[0058] Since it consists of composition like a not less and camera equipment 4 and the supporting structure 707 will rotate the circumference check equipment F4 for automobiles of this invention in this 4th operation gestalt to the rotation direction and the opposite direction of the rotation shaft 900 through the posture orthodontic appliance 9 which consists of the 1st bevel gear 91 and the 2nd bevel gear 92 if it makes a mechanical component 6 drive and rotates the rotation shaft 900 consequently, camera equipment 4 always serves as vertical regularity. The thing F3

of this 4th operation gestalt can attain the same operation effect as the thing F1 of the aforementioned 1st operation gestalt, the thing F2 of the 2nd operation gestalt, and the thing F3 of the 3rd operation gestalt.

[0059] Drawing 44 and drawing 45 show the 5th operation gestalt of the circumference check equipment for automobiles of this invention. Drawing 1 or drawing 43 , drawing 50 and drawing 51 , and a same sign show the same thing among drawing. The friction clutch mechanism 64 is formed in the mechanical component 6 of the things F1, F2, F3, and F4 of the operation gestalt above-mentioned [the circumference check equipment for automobiles of this invention in this 5th operation gestalt].

[0060] This friction clutch mechanism 64 consists of a movable side clutch 640 which rotates with the rotation shaft drive gear 65, a fixed side clutch 641 fixed to the mirror base 1, and a compression coil spring 642 which carries out the pressure welding of the movable side clutch 640 to the fixed side clutch 641. The engagement presser foot stitch tongue 643 protrudes on the aforementioned fixed side clutch 641 at one, and the engagement slot 650 is established in the rotation shaft drive gear 65. When this engagement presser foot stitch tongue 643 engages with the engagement slot 650, the fixed side clutch 641 and the rotation shaft drive gear 65 rotate to one, and movement of the fixed side clutch 641 is attained a little to the rotation shaft drive gear 65 at shaft orientations.

[0061] Pressing fixation of the end section of the rotation shaft 7,700,900 is carried out at the aforementioned rotation shaft drive gear 65. The end section of this rotation shaft 7,700,900 is supported to revolve by the mirror base 1 possible [rotation] through the bearing 66. On the other hand, the rotation shaft drive gear 65 meshes with the worm 67 fixed to the output shaft of Motor M.

[0062] Since the friction clutch mechanism 64 possesses the thing of this 5th operation gestalt in a mechanical component 6, the information which there is no blurring of the camera image by vibration etc., and was stabilized by pressure-welding friction with the movable side clutch 640 and the fixed side clutch 641 since the holding power at the time of a halt of camera equipment 4 was obtained is acquired. Moreover, since the load of a mechanical component 6 (the rotation shafts 7, 700, and 900, camera equipment 4) is fixed, operation of a mechanical component 6 becomes smooth. Furthermore, above-mentioned holding power can be easily adjusted by changing the compression coil spring 642. A stepless story can be made to suspend camera equipment 4 in arbitrary positions further again.

[0063] Drawing 46 and drawing 47 show the 6th operation gestalt of the circumference check equipment for automobiles of this invention. Drawing 1 or

drawing 45 , drawing 50 and drawing 51 , and a same sign show the same thing among drawing. The ball clutch mechanism 68 is formed in the mechanical component 6 of the things F1, F2, F3, and F4 of the operation gestalt above-mentioned [the circumference check equipment for automobiles of this invention in this 6th operation gestalt].

[0064] This ball clutch mechanism 68 consists of compression coil springs 682 which carry out the pressure welding of the ball 680 to the ball 680 which rotates with the rotation shaft drive gear 65, and the crevice 681 of the semi-sphere configuration prepared in the mirror base 1 at the mirror base 1, and are made to fit into a crevice 681. This ball clutch mechanism 68 can attain the same operation effect as the above-mentioned friction clutch mechanism 64. Since a ball 680 fits into a crevice 681, especially as for this ball clutch mechanism 68, high positioning (halt position of camera equipment 4) of precision is obtained. In addition, especially the number of balls 680, a position, a number, a position of a crevice 681, etc. are not limited. For example, if it prepares with a ball 680 and two crevices 681 as the solid line in drawing 47 shows, a ball 680 can be made into two pieces and three positions can be made to suspend four pieces, then camera equipment 4 for a crevice 681, as two positions can be made to suspend camera equipment 4 and the solid line and two-dot chain line in drawing 47 show.

[0065] Drawing 48 and drawing 49 show the 7th operation gestalt of the circumference check equipment for automobiles of this invention. Drawing 1 or drawing 47 , drawing 50 and drawing 51 , and a same sign show the same thing among drawing. between the area pellucida 102 of the covering 100 of the things F1, F2, F3, and F4 of the operation gestalt above-mentioned [the circumference check equipment for automobiles of this invention in this 7th operation gestalt], and camera equipment 4 -- water absorption eradication -- the member 103 is infixed this water absorption eradication -- it consists of the sponge and the felt which have elasticity, cloth, etc., and is fixed to camera equipment 4, and the member 103 is contacted by covering 100 and the area pellucida 102

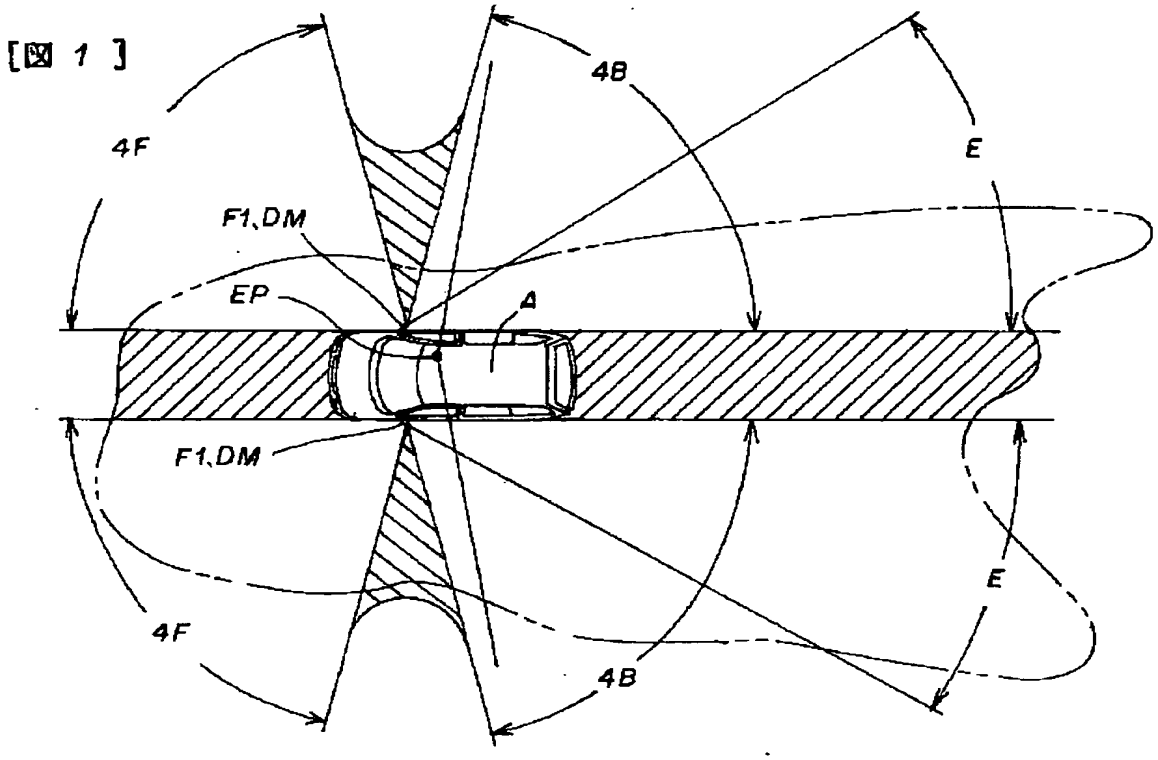
[0066] since the thing of this 7th operation gestalt is what consists of composition like a not less -- rotation of camera equipment 4 -- following -- water absorption eradication -- since the waterdrop with which the member 103 slid the covering 100 and area-pellucida 102 inside top, and adhered to the inside, dew, cloudiness, dust, etc. are wiped off, a camera image becomes clear and visibility improves moreover, vibration of Automobile A -- water absorption eradication -- since it is absorbable with the elasticity of a member 103, blurring of a camera image can be prevented

[0067]

[Effect of the Invention] As mentioned above, by operation of a control switch and the operation of the control circuit section, since the circumference check equipment for automobiles of this invention can make a position carry out a rotation halt of the camera equipment through a mechanical component and a rotation shaft, it can catch the information on the many directions predetermined with one camera equipment, so that clearly.

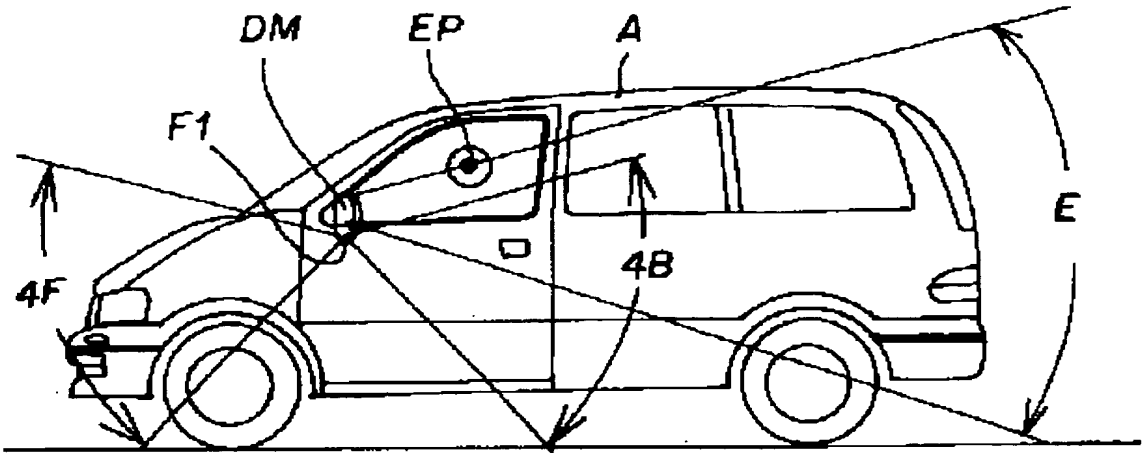
DRAWINGS

[Drawing 1]

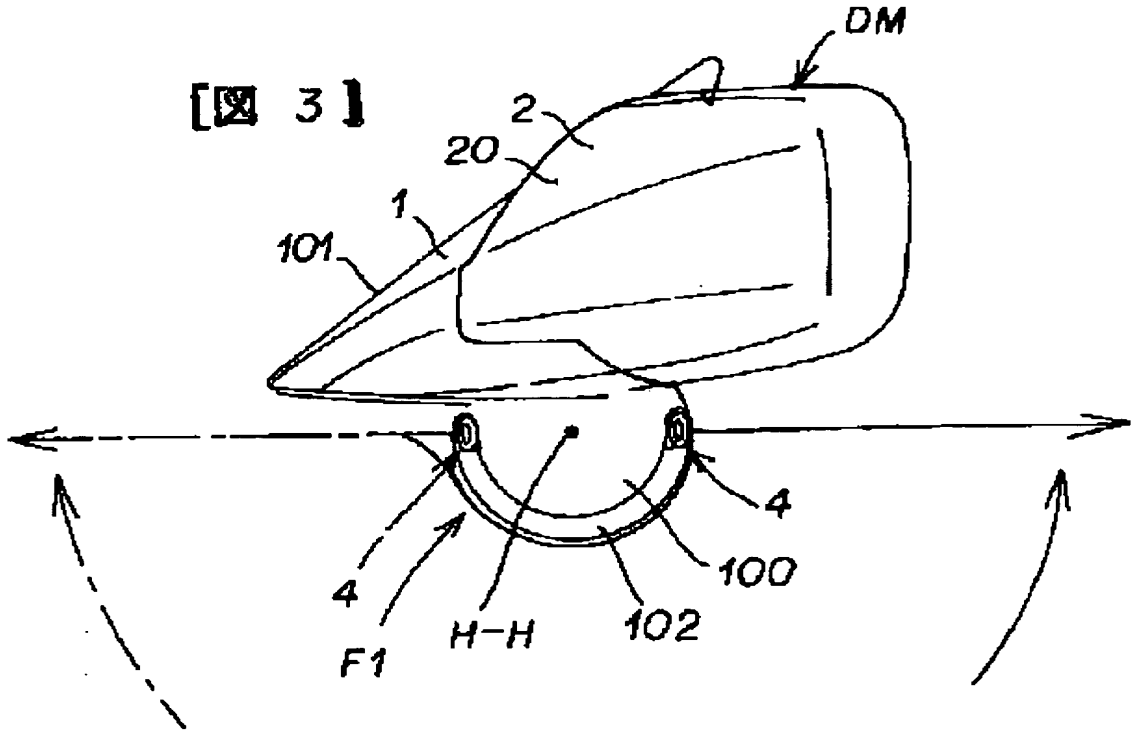


[Drawing 2]

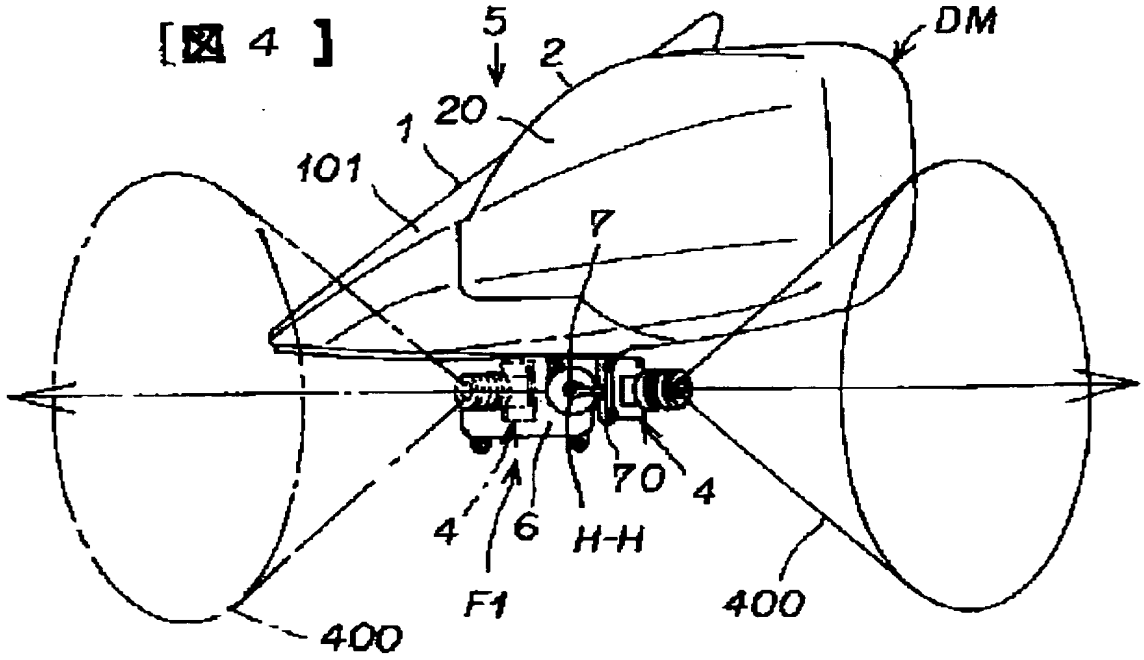
[図 2]



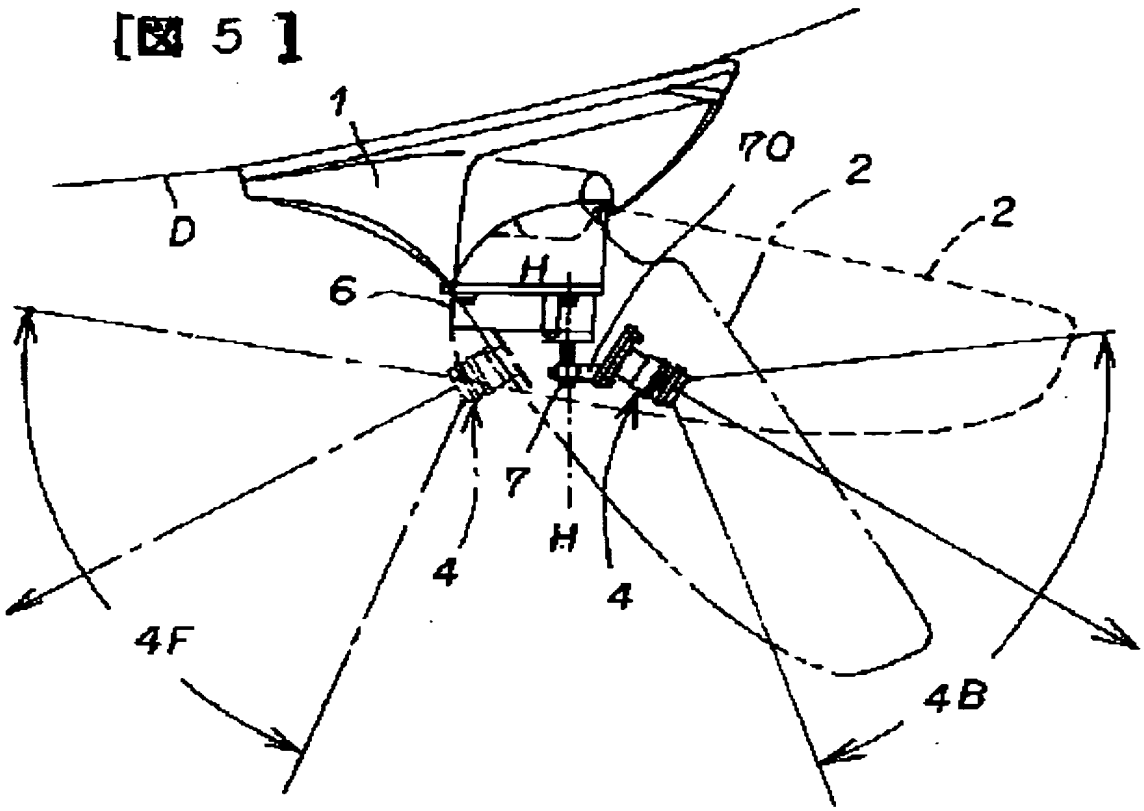
[Drawing 3]



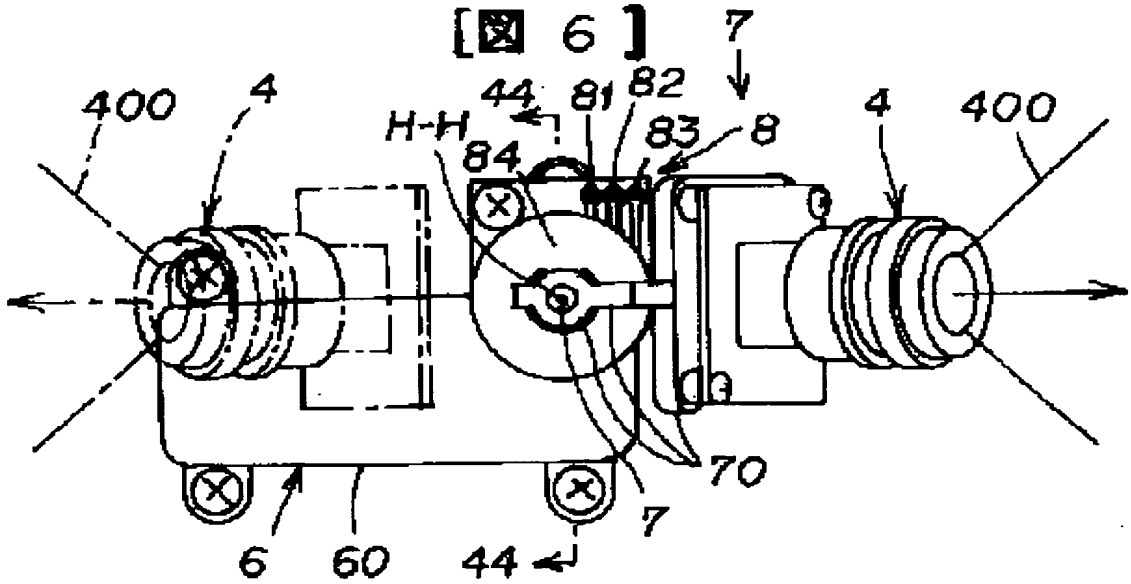
[Drawing 4]



[Drawing 5]

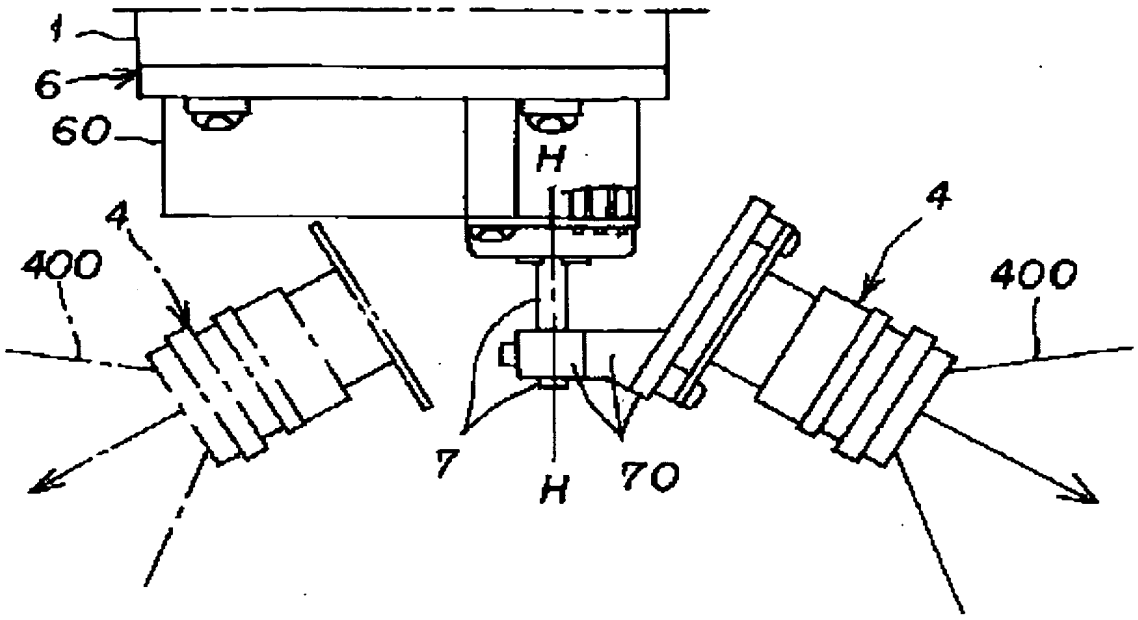


[Drawing 6]



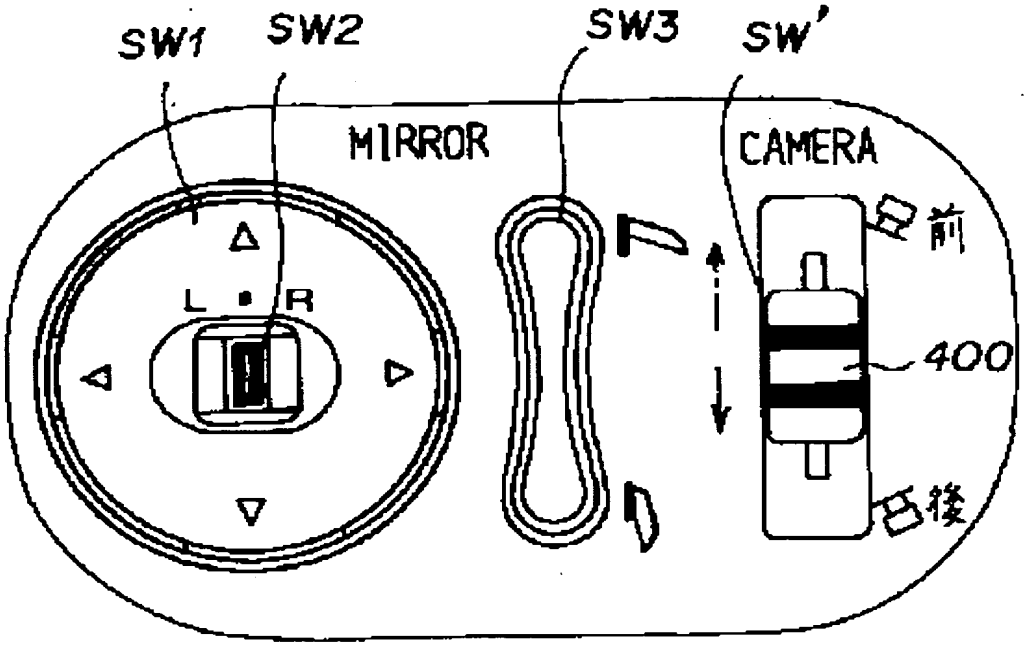
[Drawing 7]

[図 7]



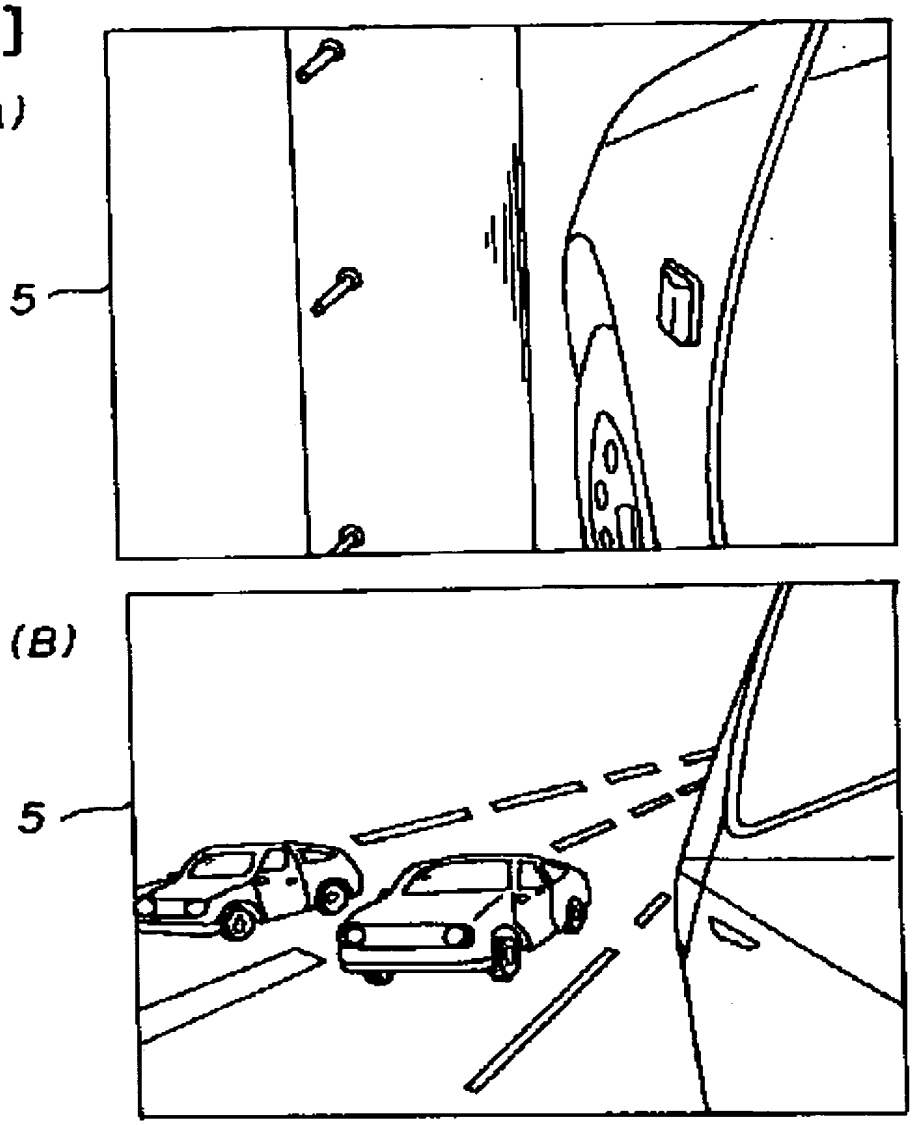
[Drawing 8]

[図 8]



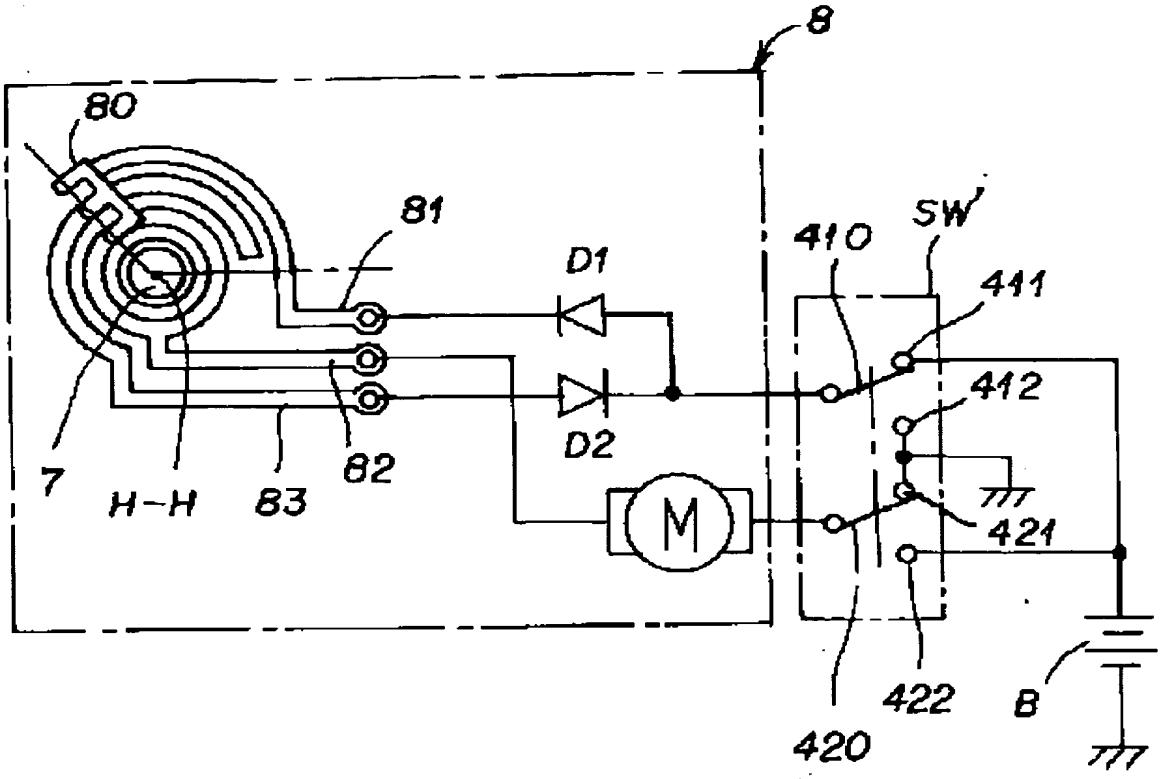
[Drawing 9]

[図 9]



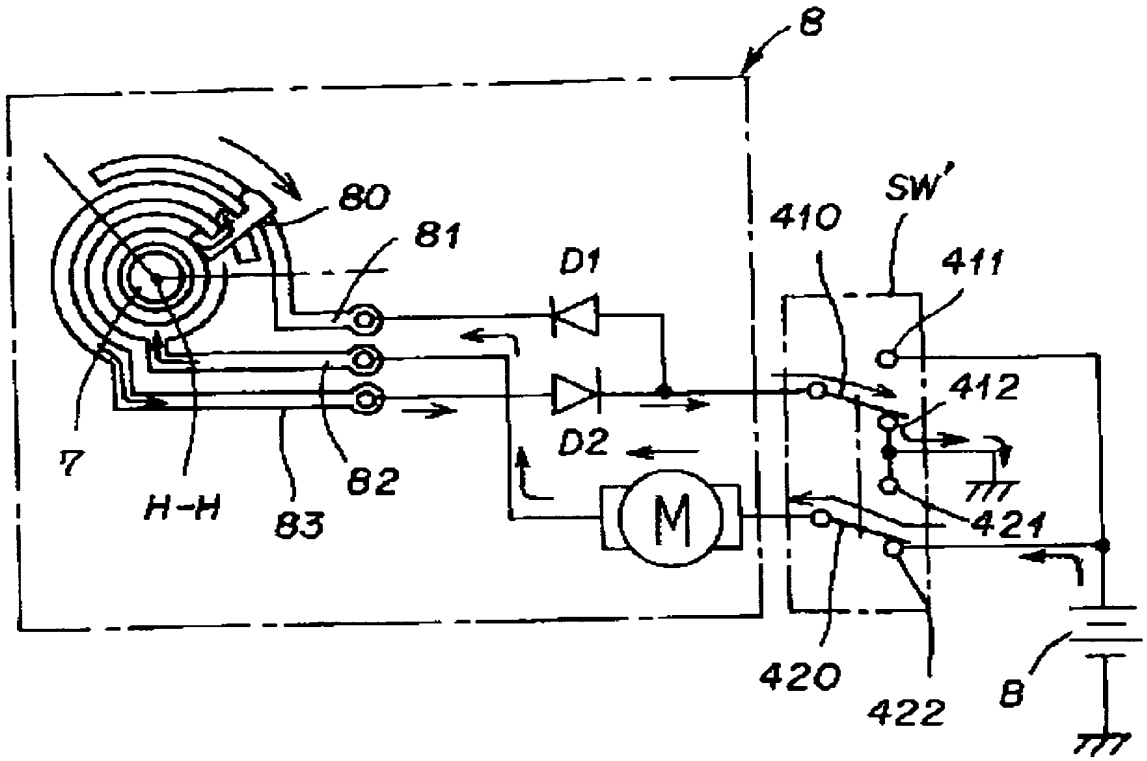
[Drawing 10]

[図10]



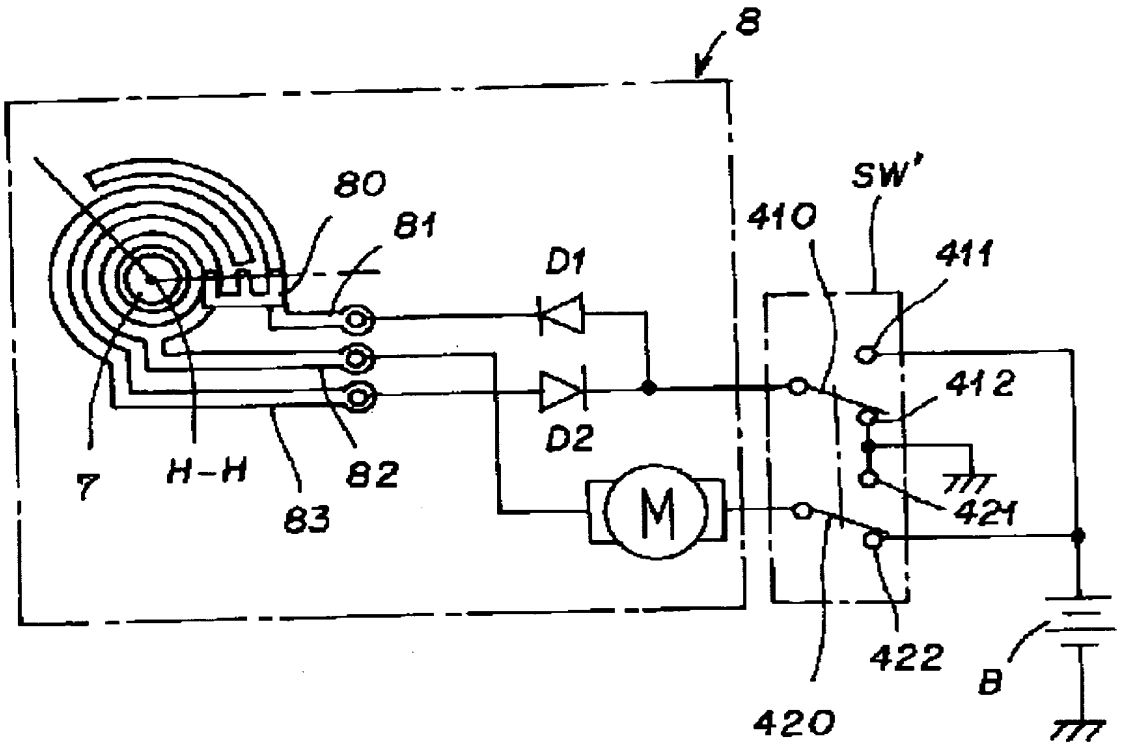
[Drawing 11]

[図 11]



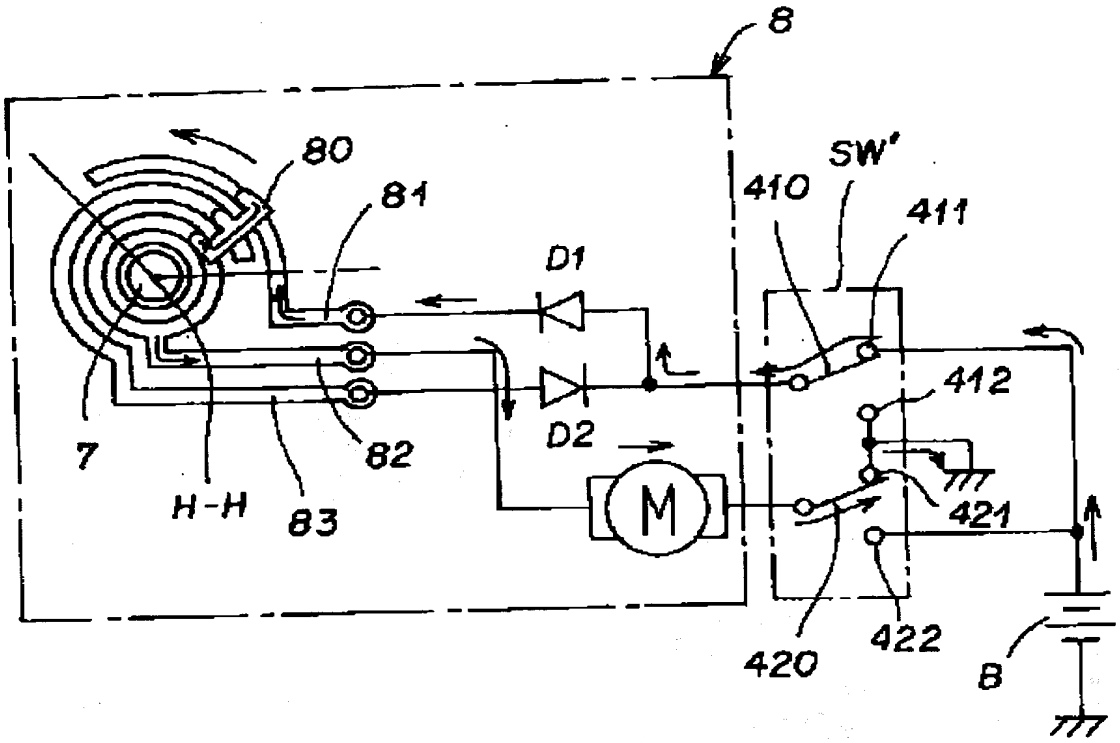
[Drawing 12]

[図 12]



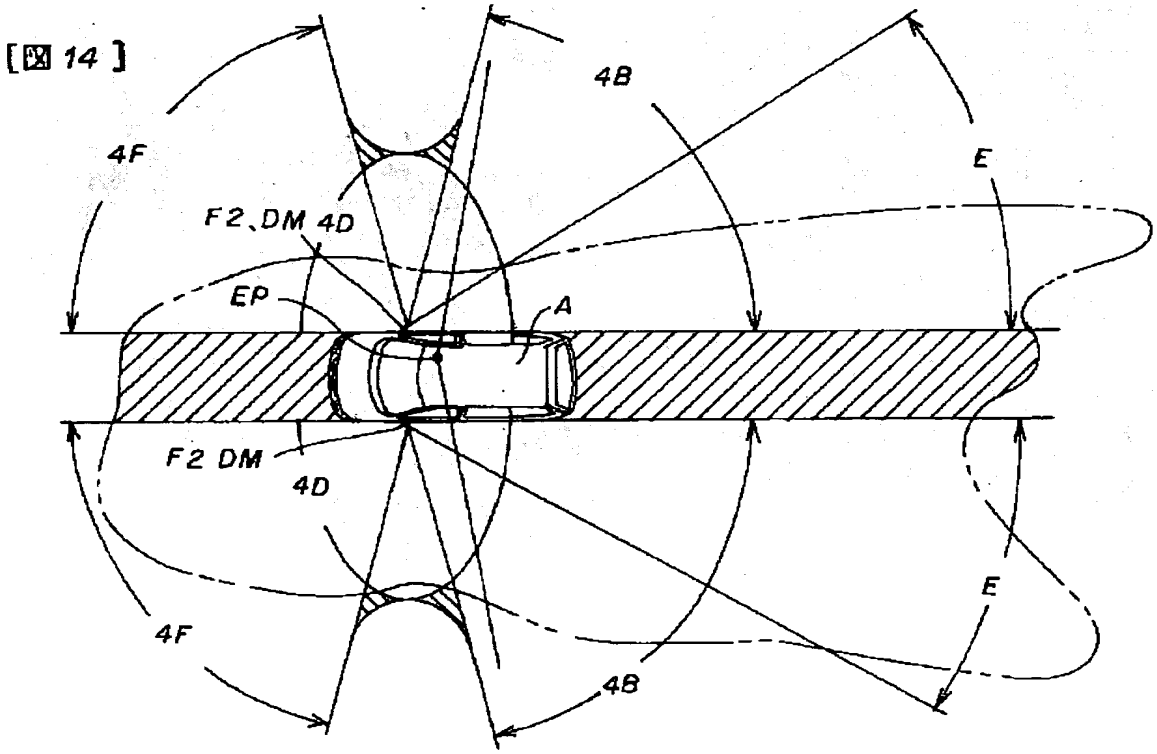
[Drawing 13]

[図 13]



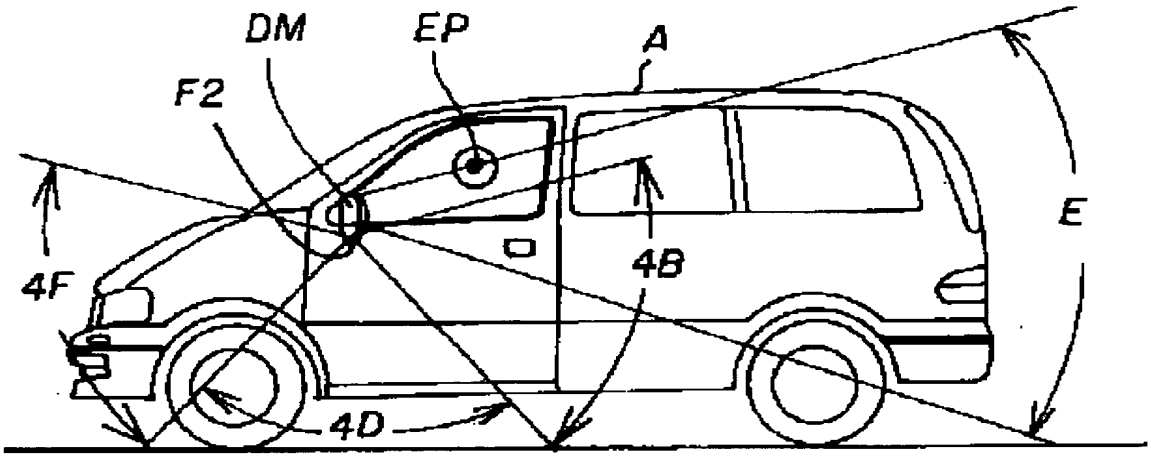
[Drawing 14]

[図 14]

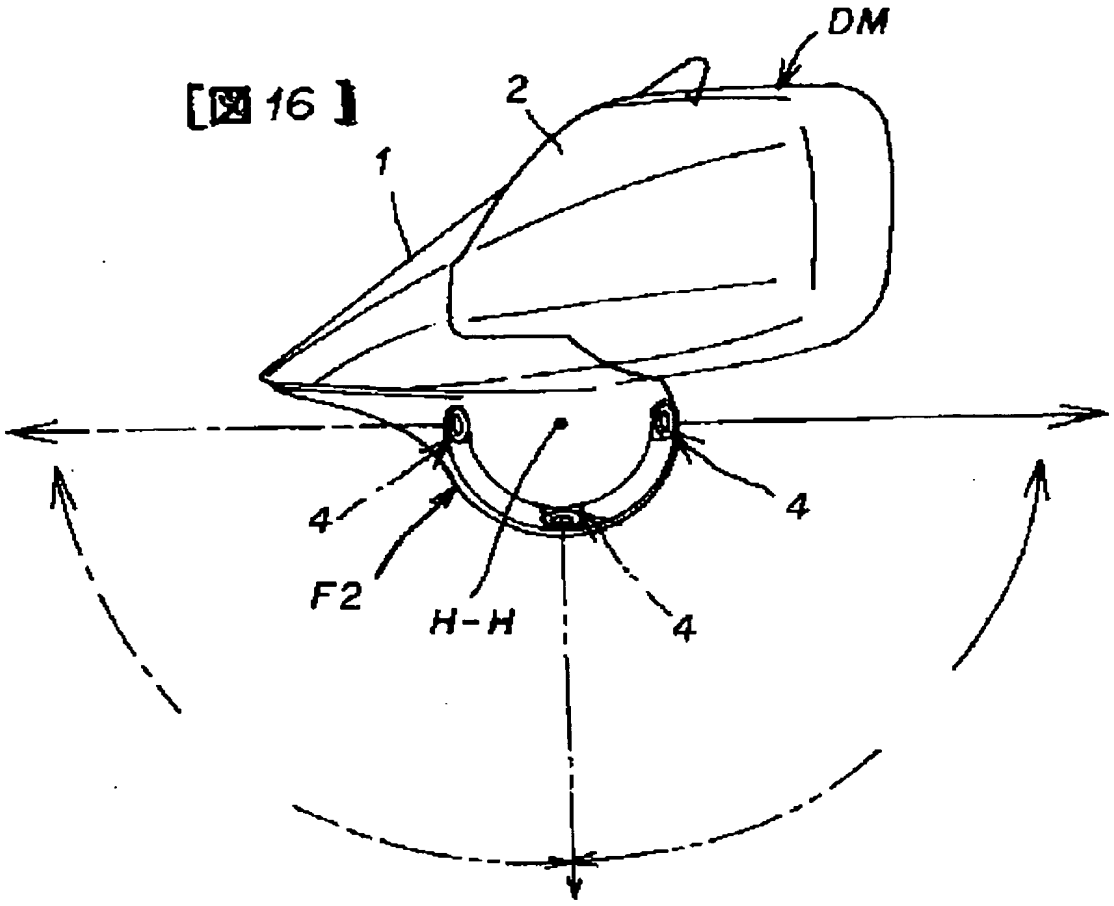


[Drawing 15]

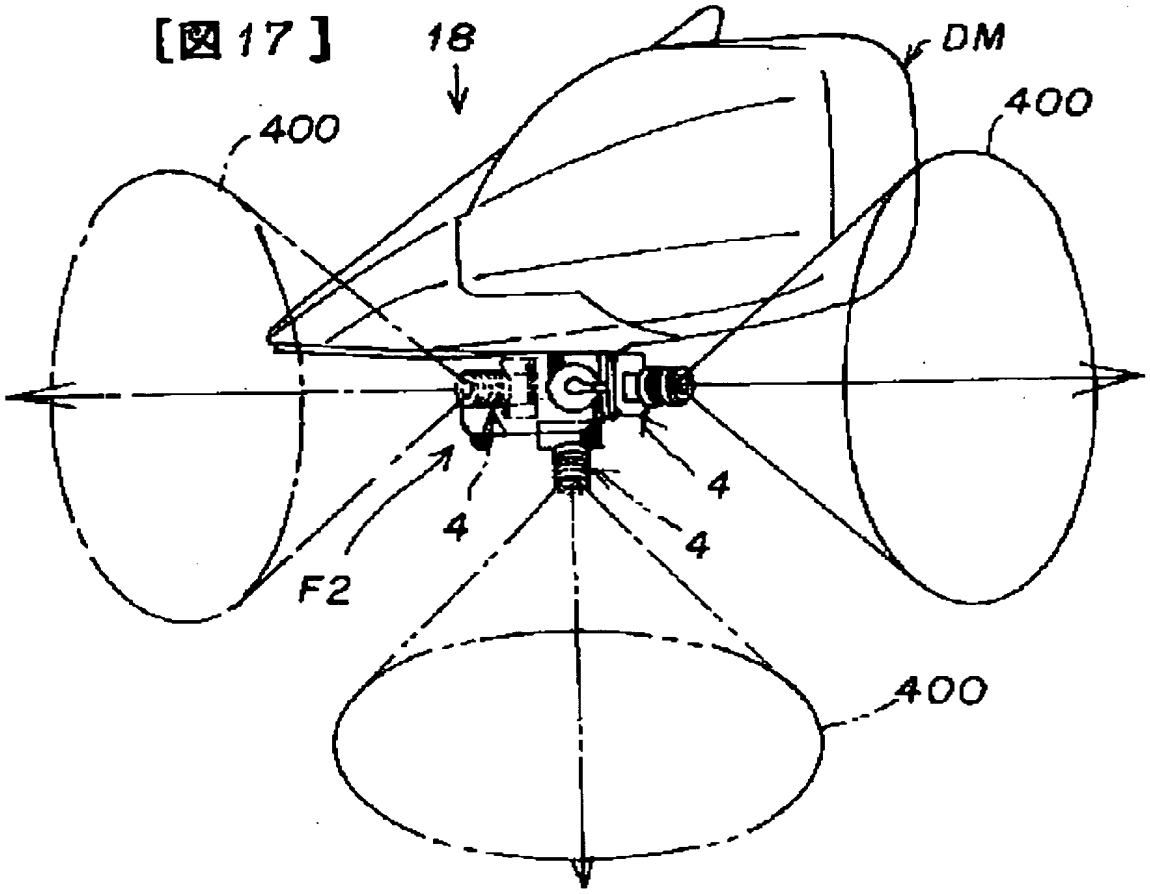
[図 15]



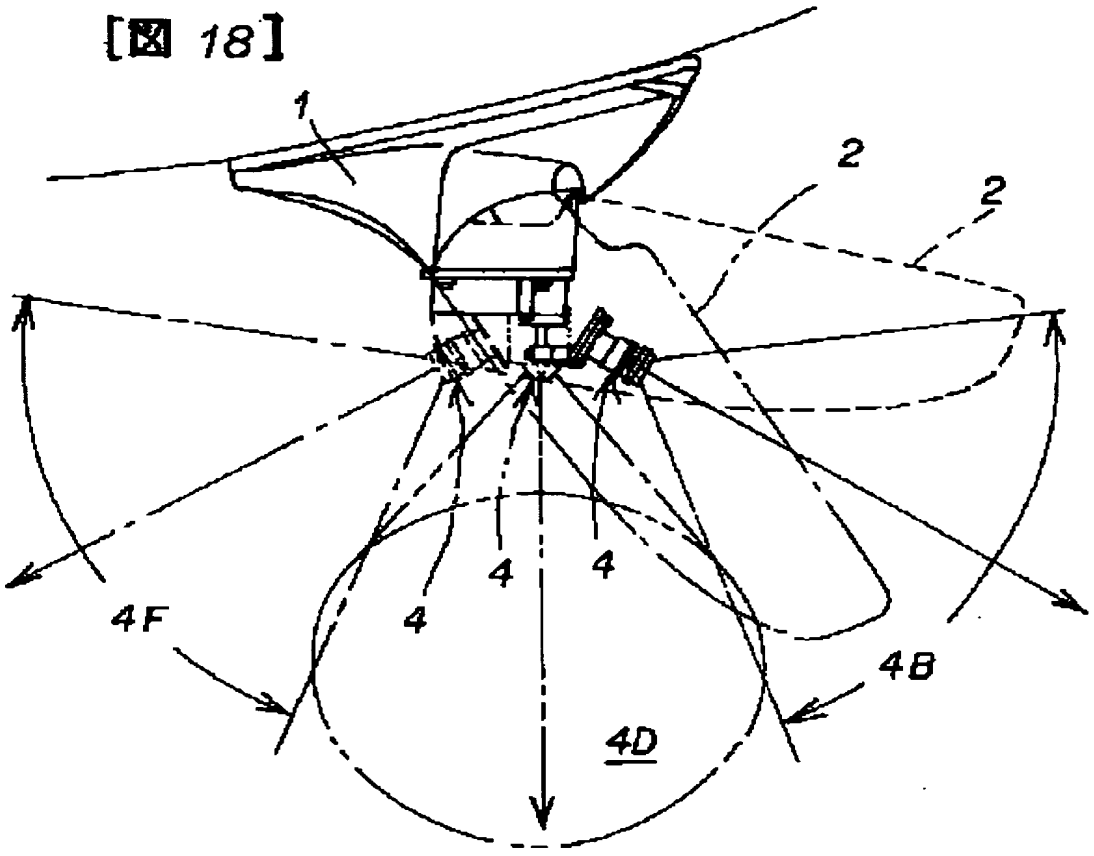
[Drawing 16]



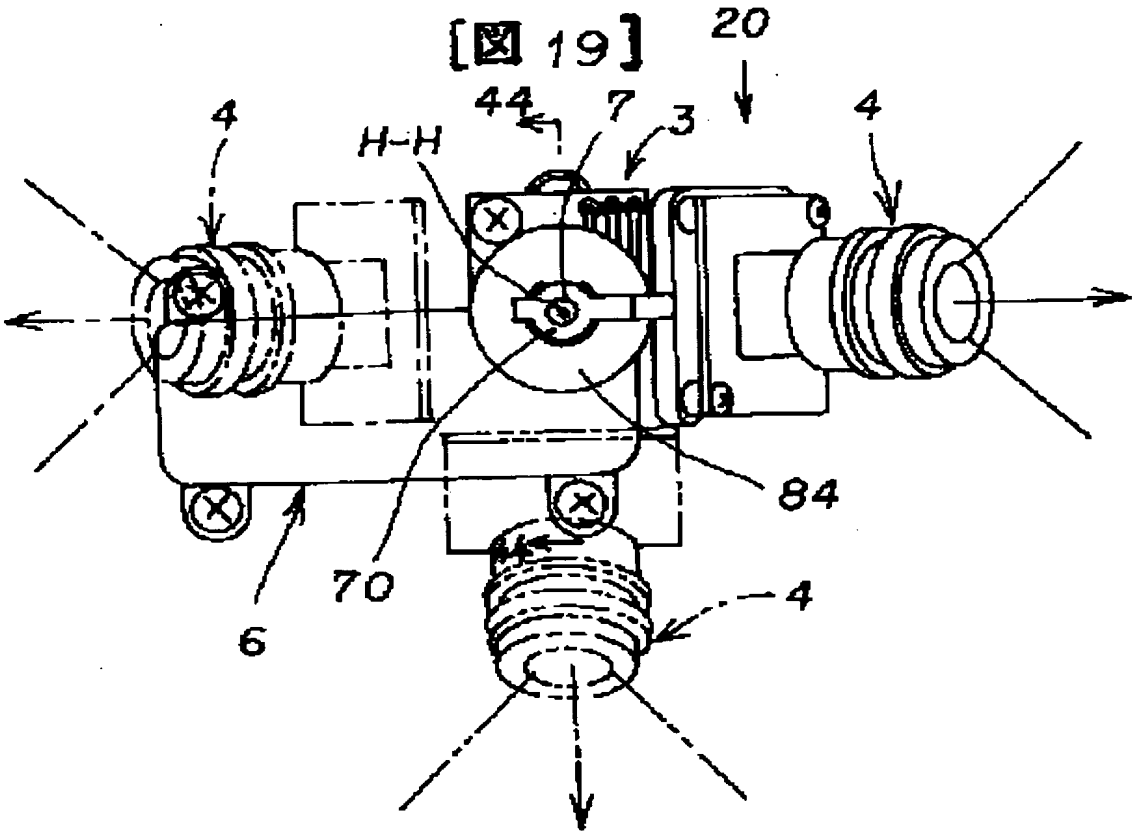
[Drawing 17]



[Drawing 18]

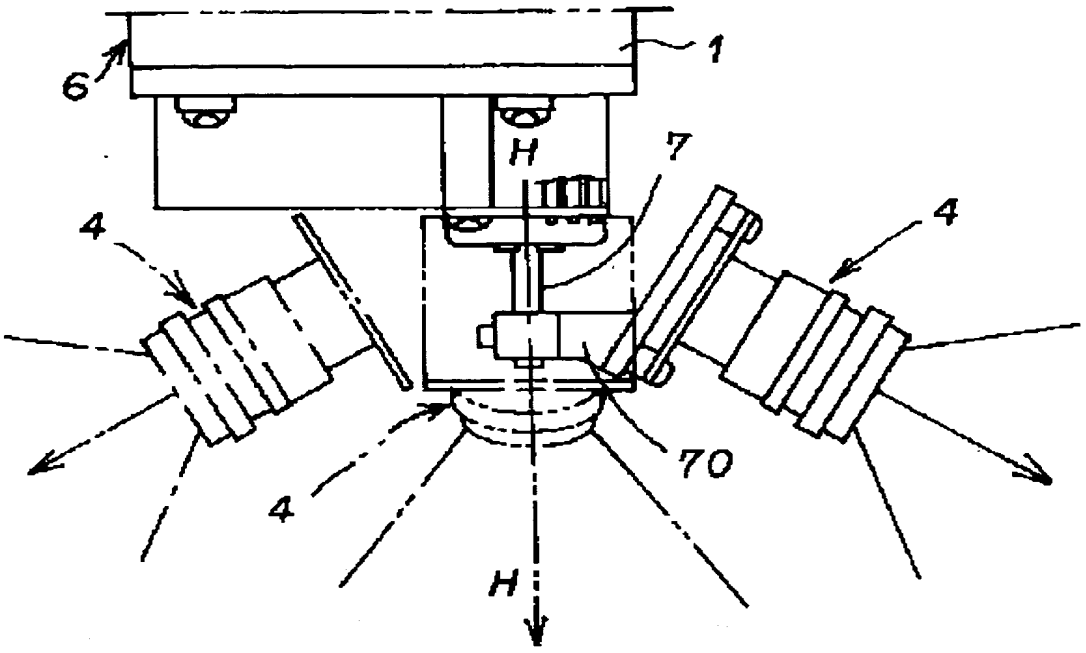


[Drawing 19]



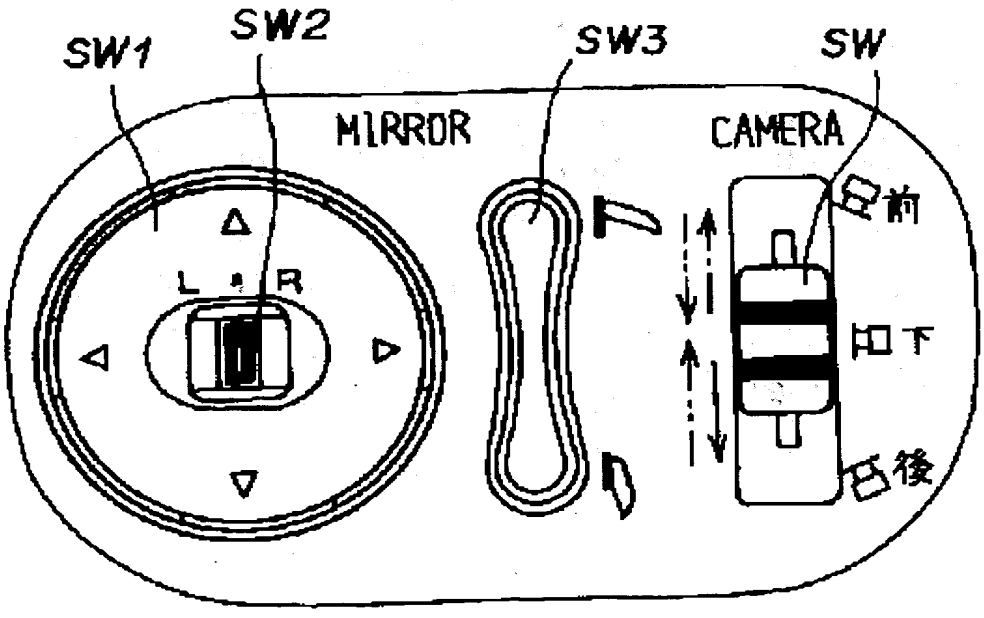
[Drawing 20]

[図 20]



[Drawing 21]

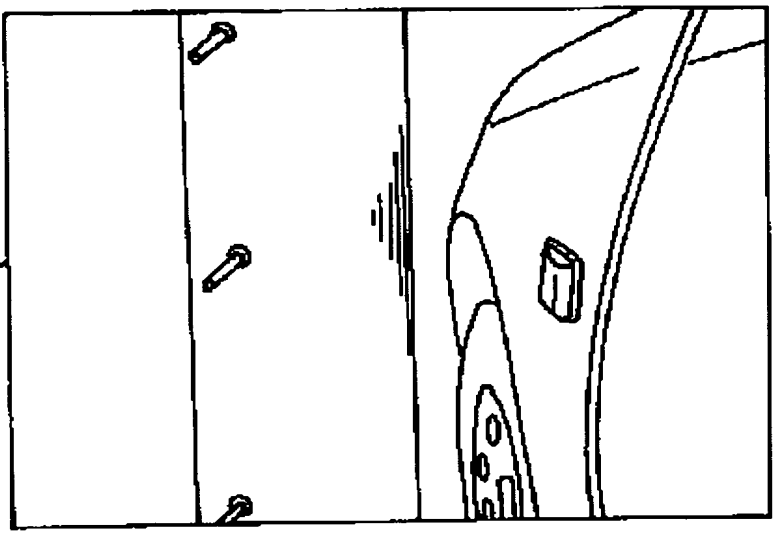
[図 21]



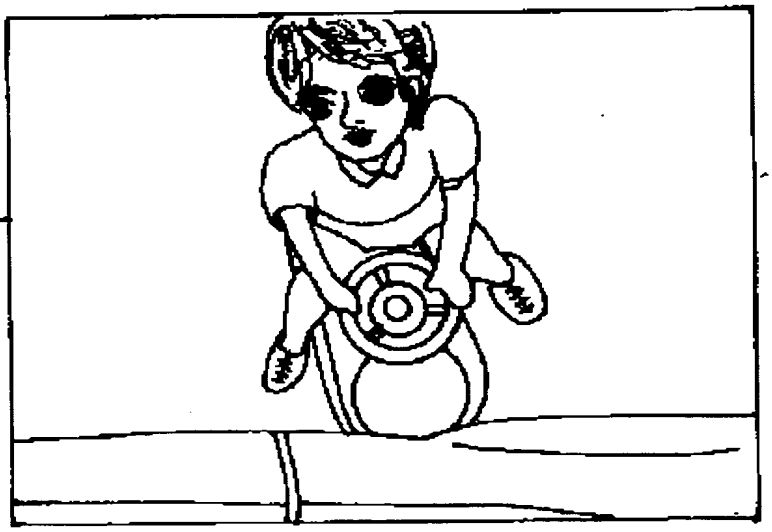
[Drawing 22]

[図 22]

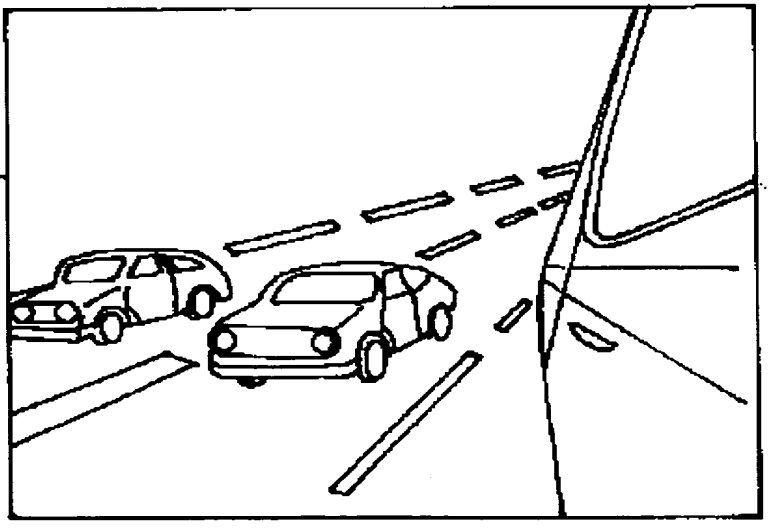
(A)



(B)

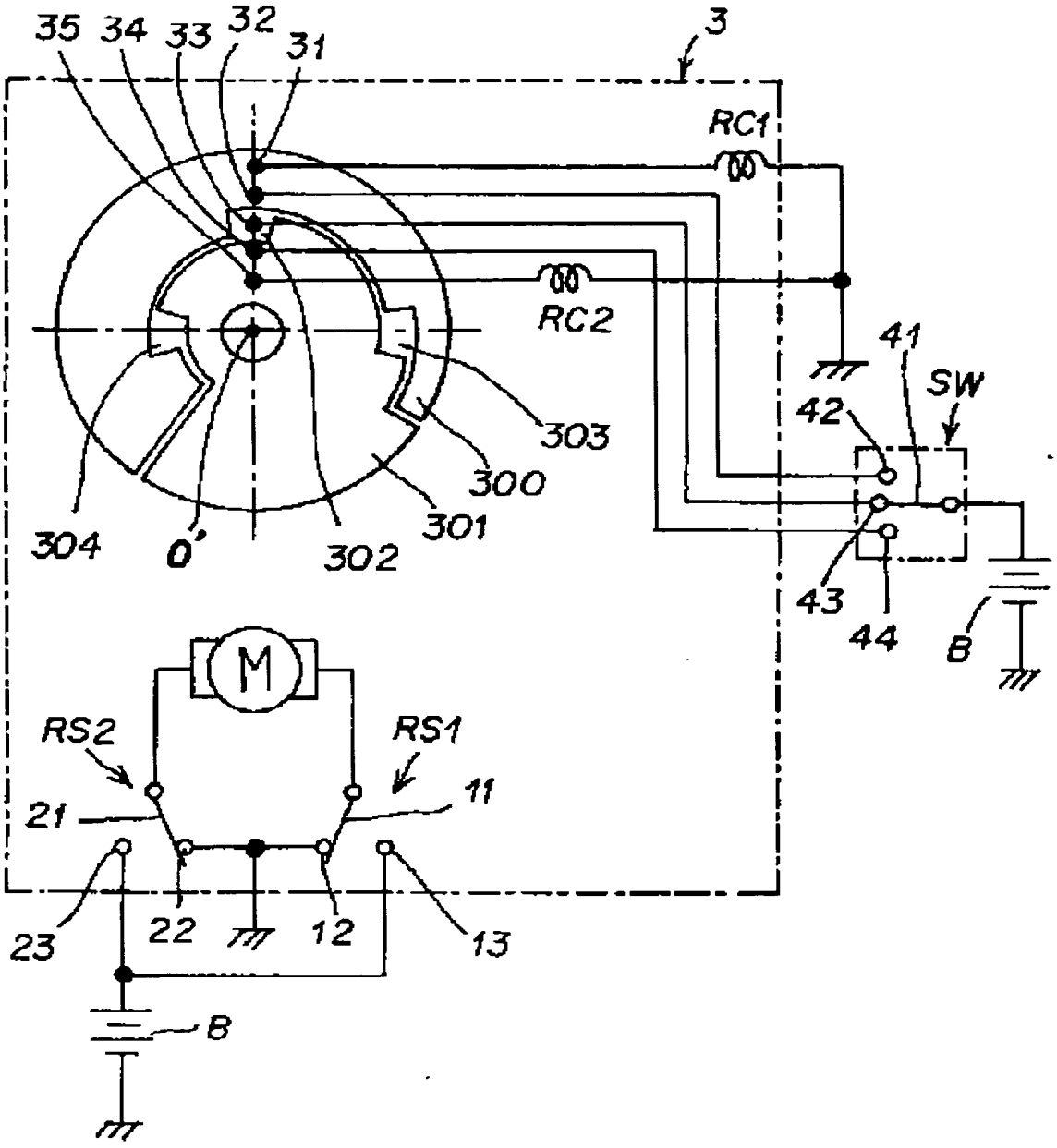


(C)



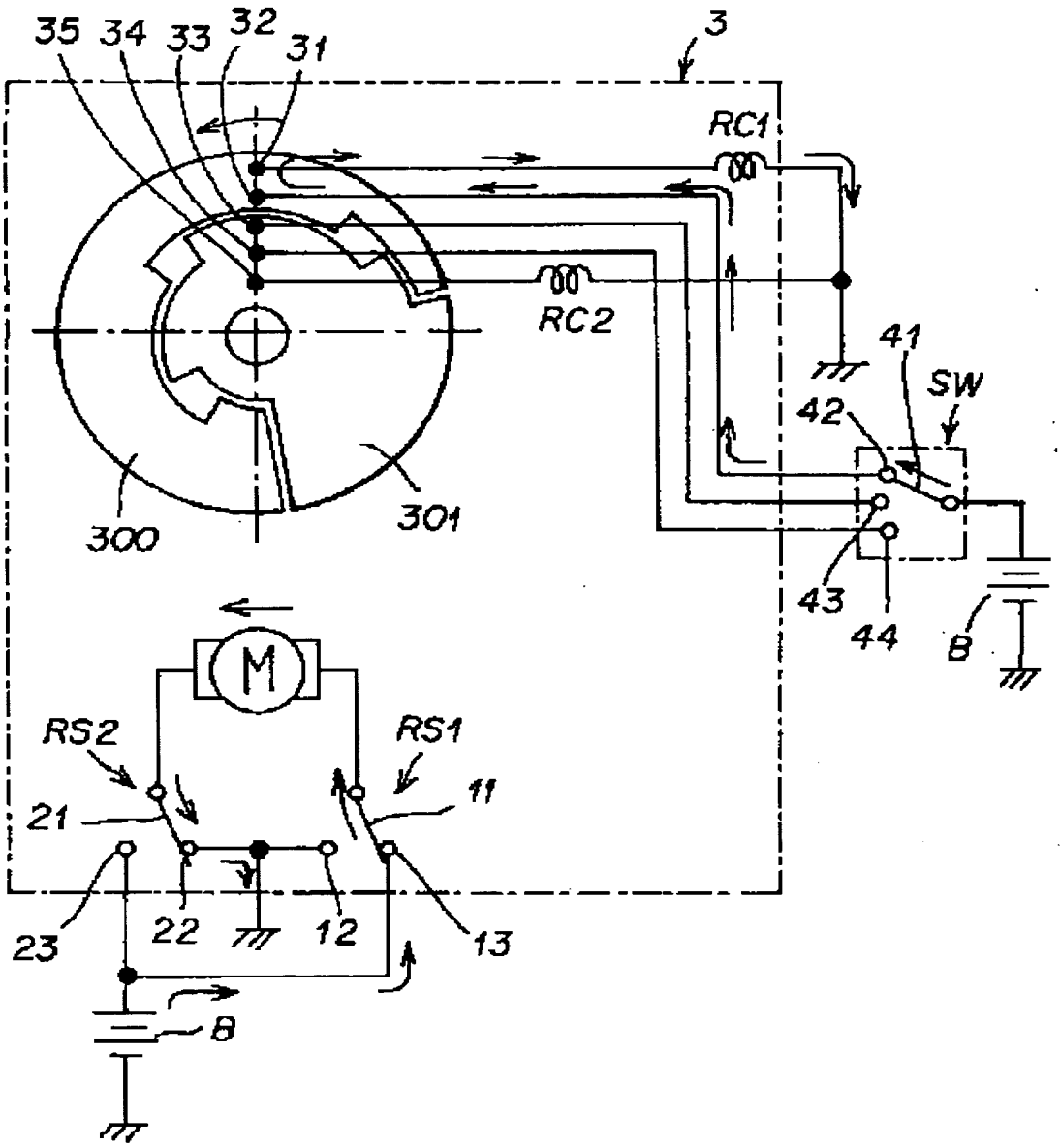
[Drawing 23]

【図 23】



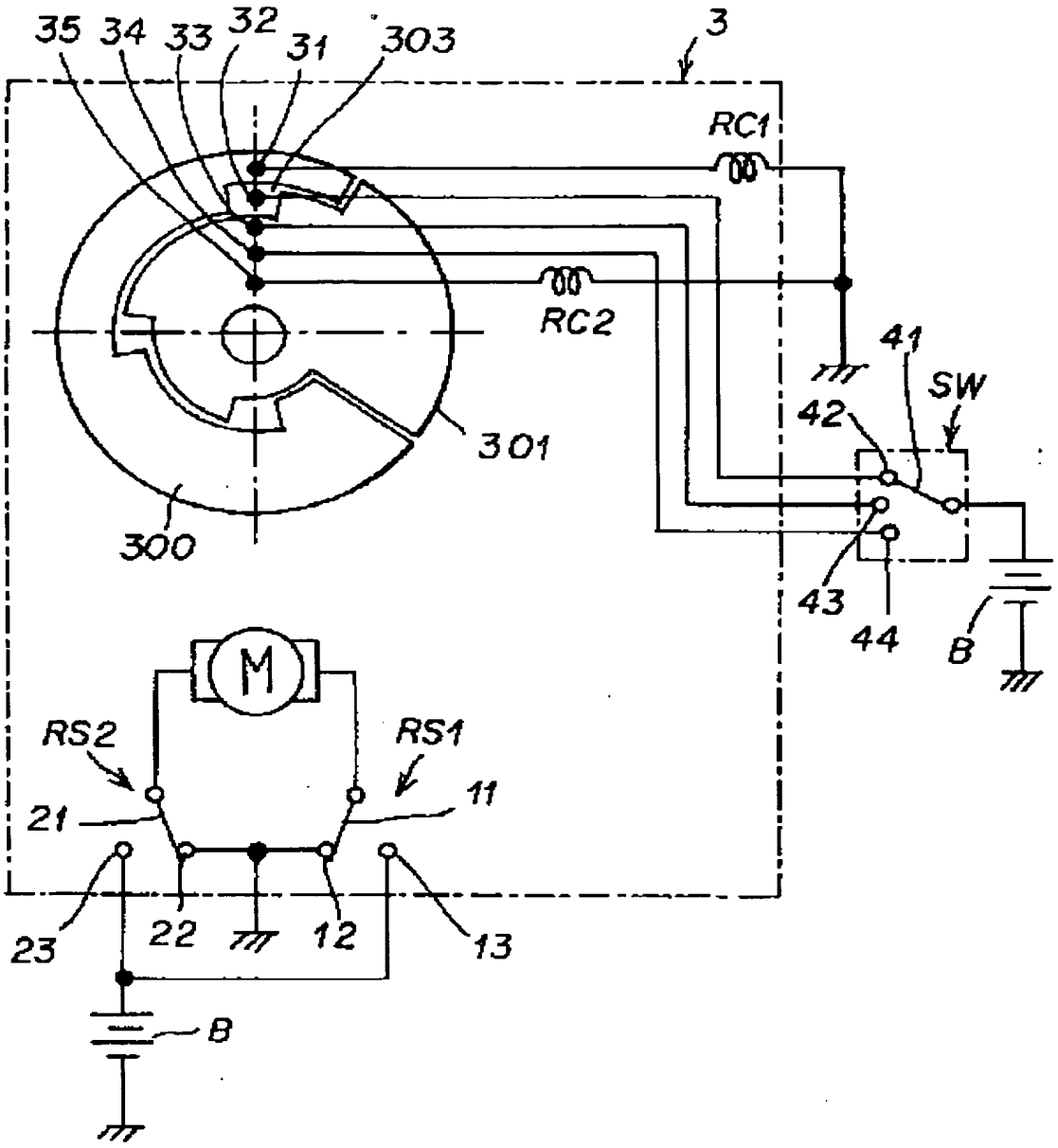
[Drawing 24]

[図 24]



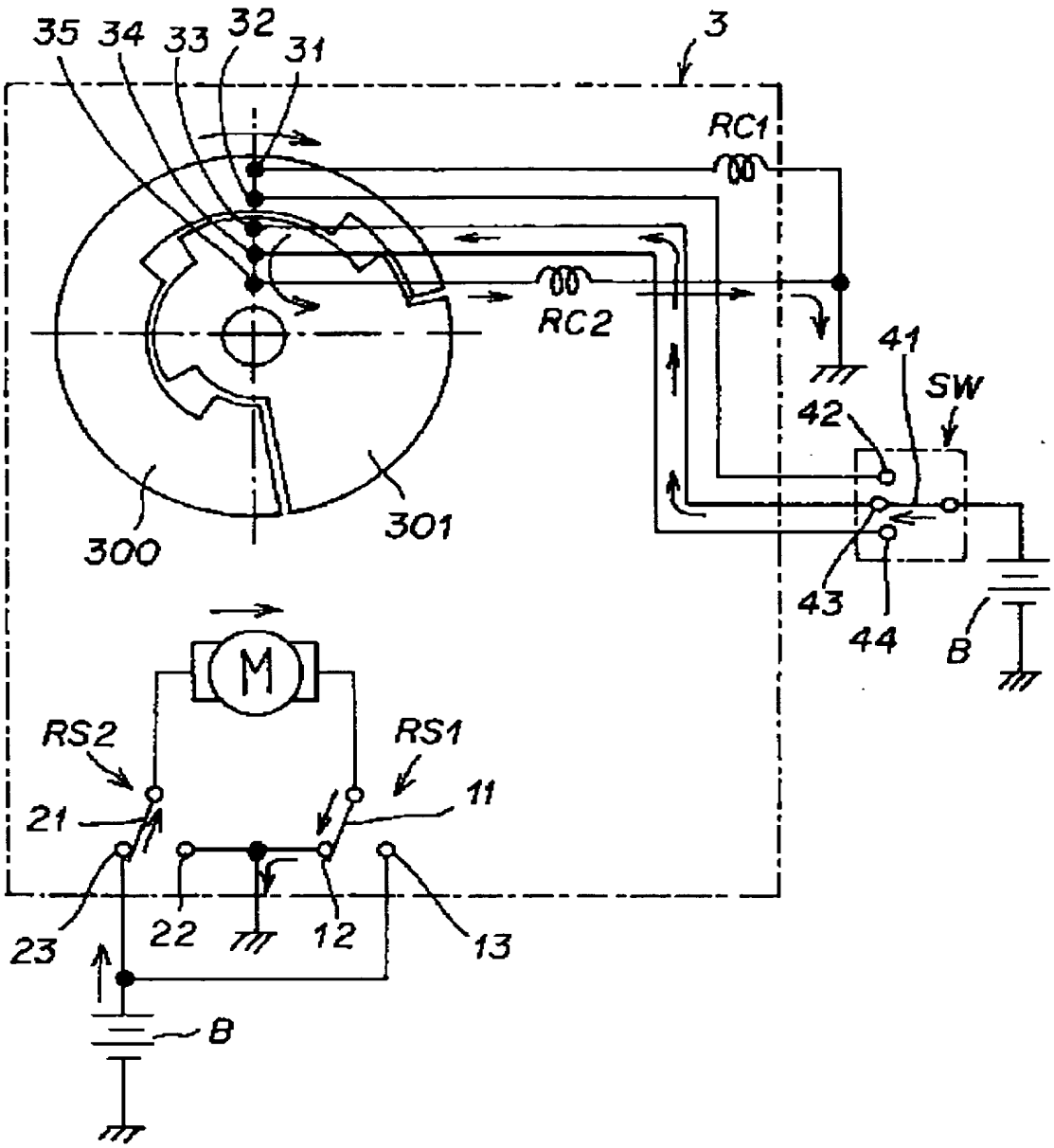
[Drawing 25]

[図 25]



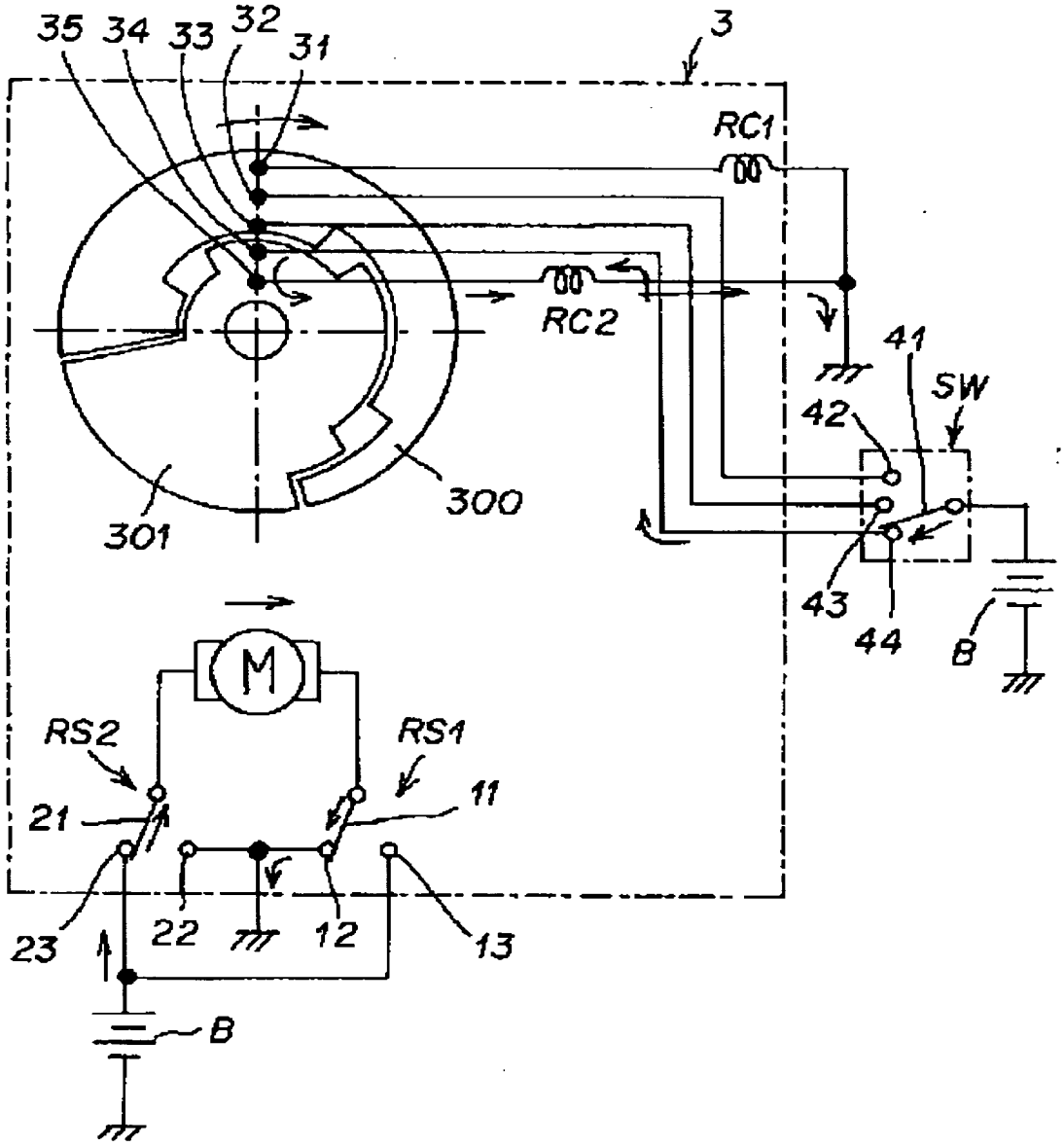
[Drawing 26]

[図 26]



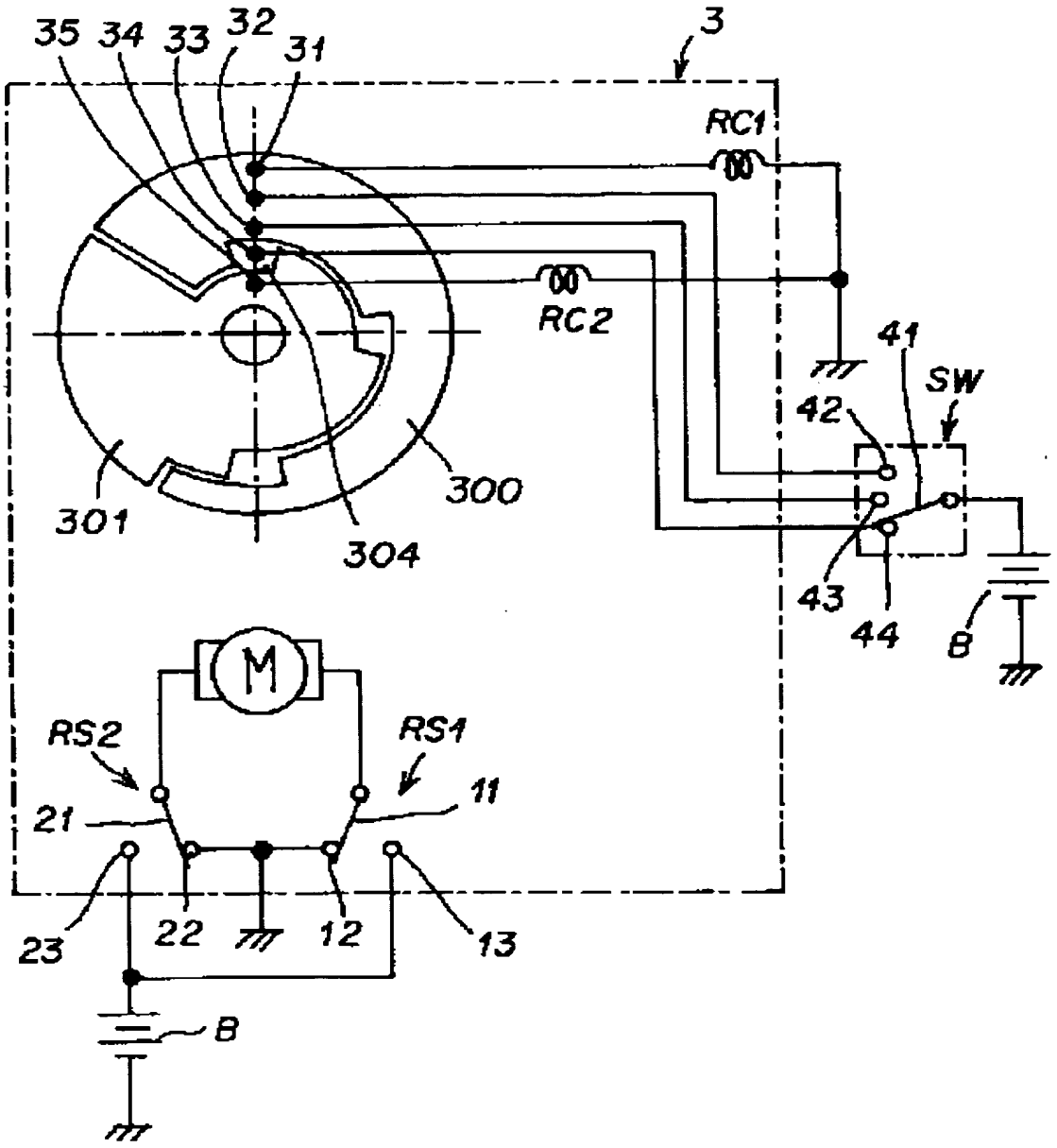
[Drawing 27]

[図 27]



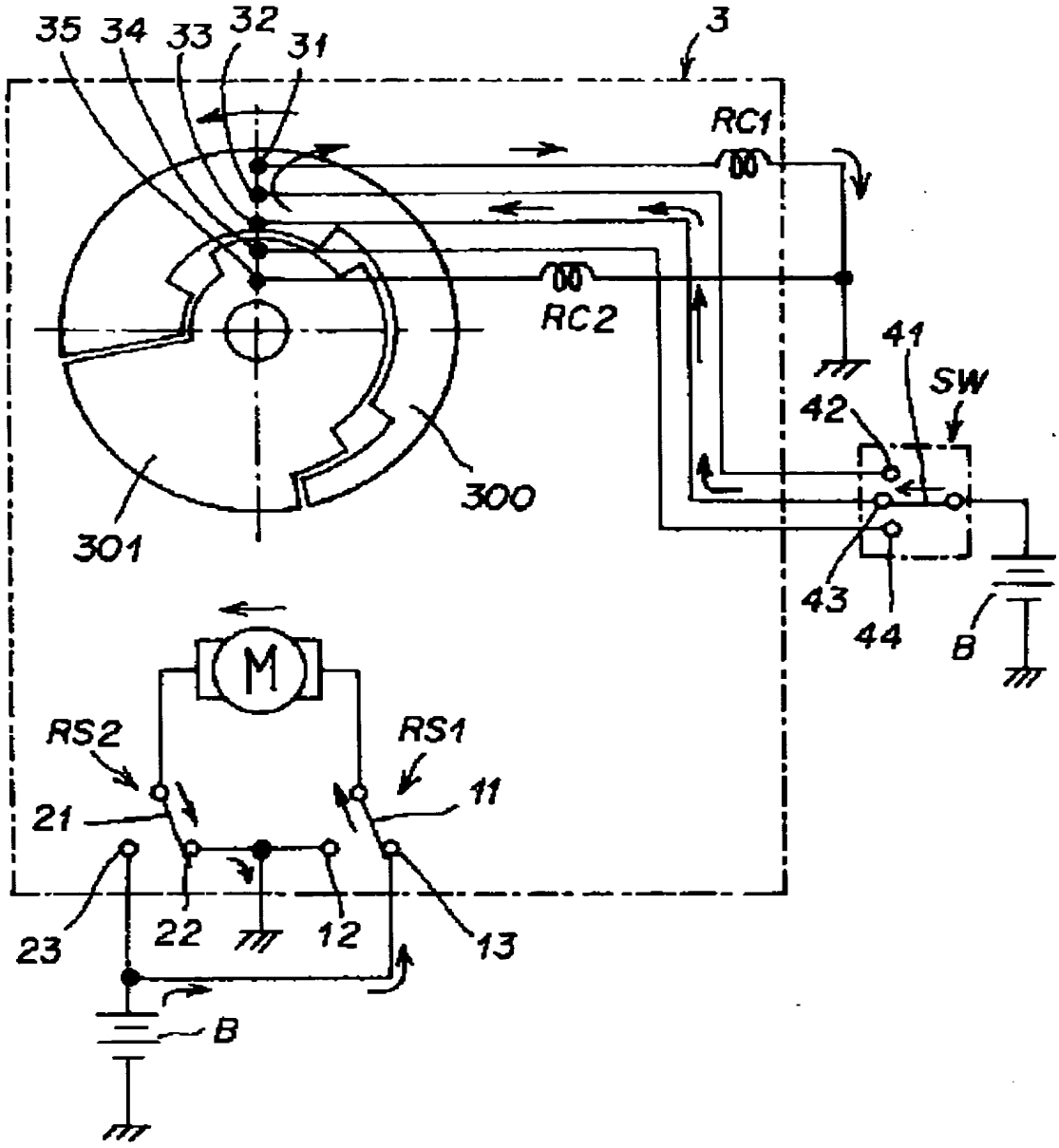
[Drawing 28]

【図28】

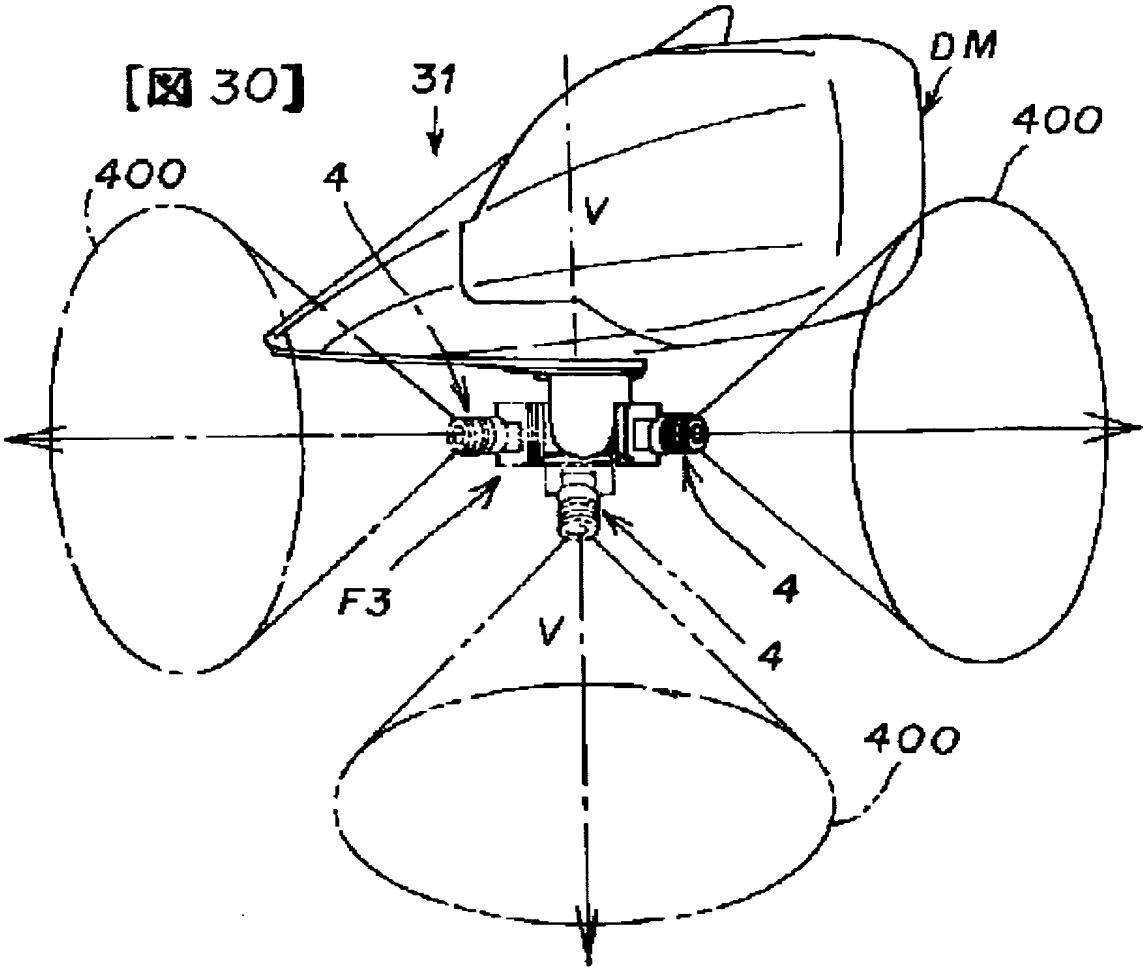


[Drawing 29]

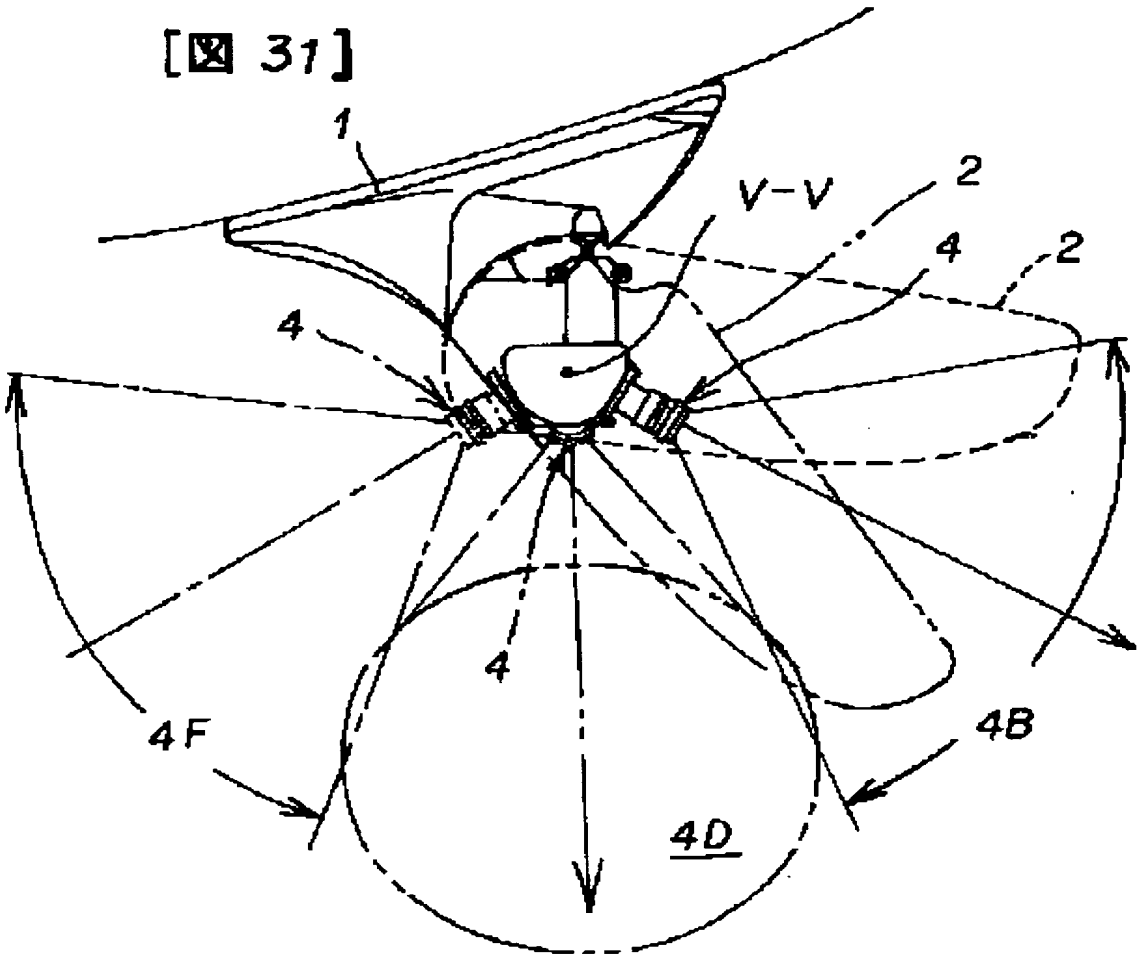
[図 29]



[Drawing 30]

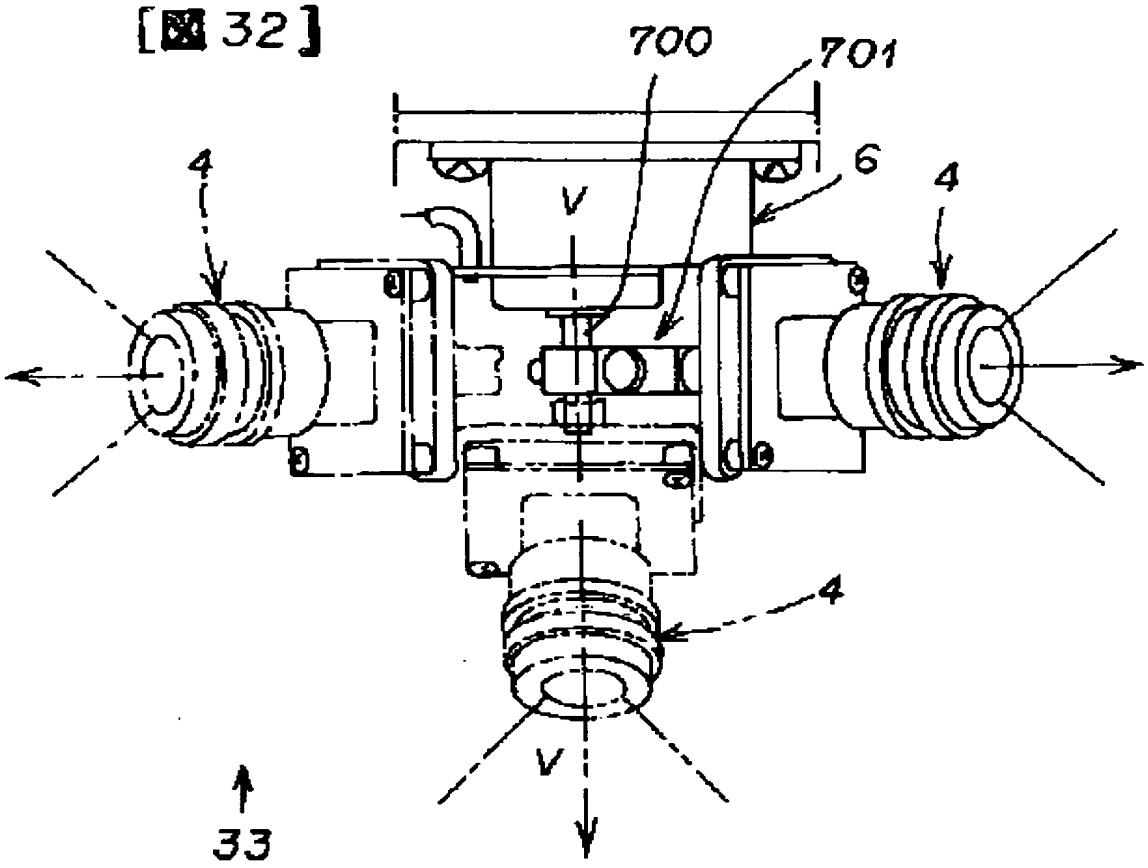


[Drawing 31]



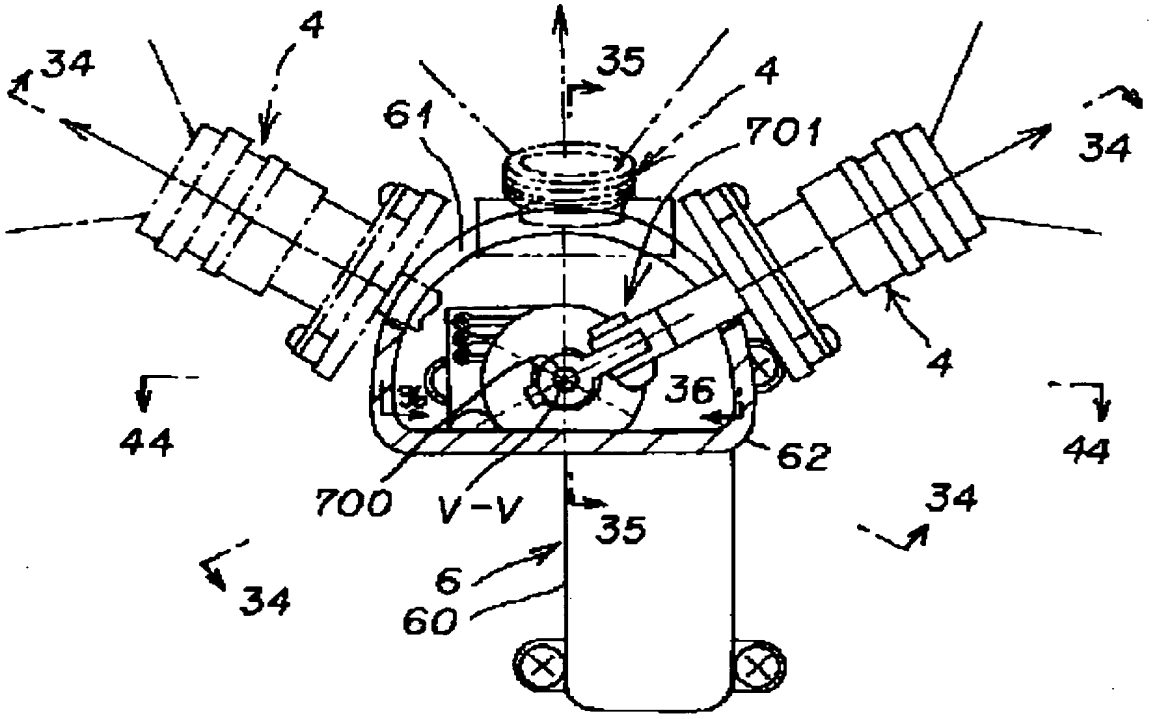
[Drawing 32]

[図 32]



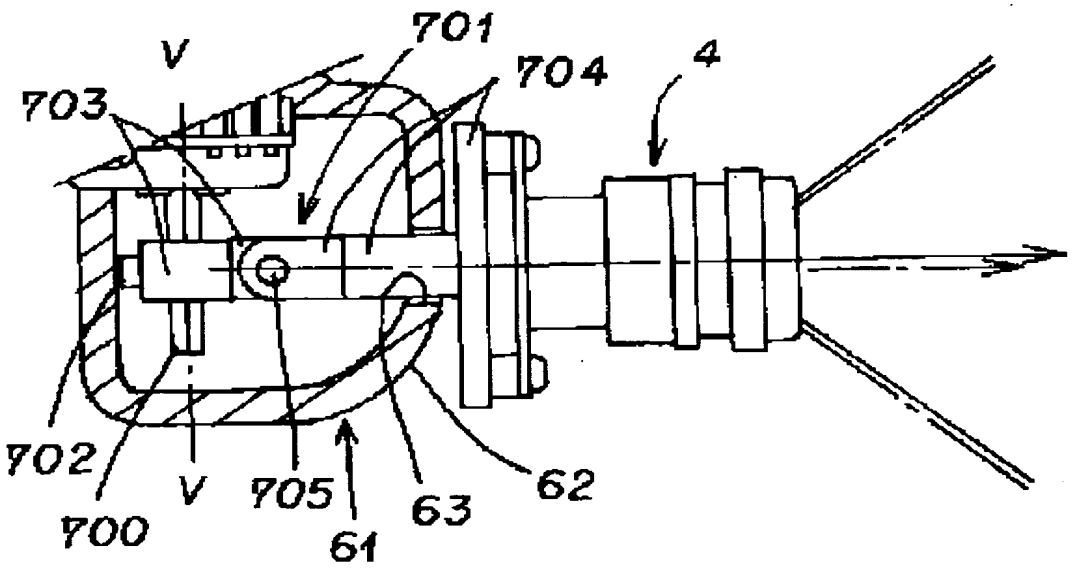
[Drawing 33]

[図33]



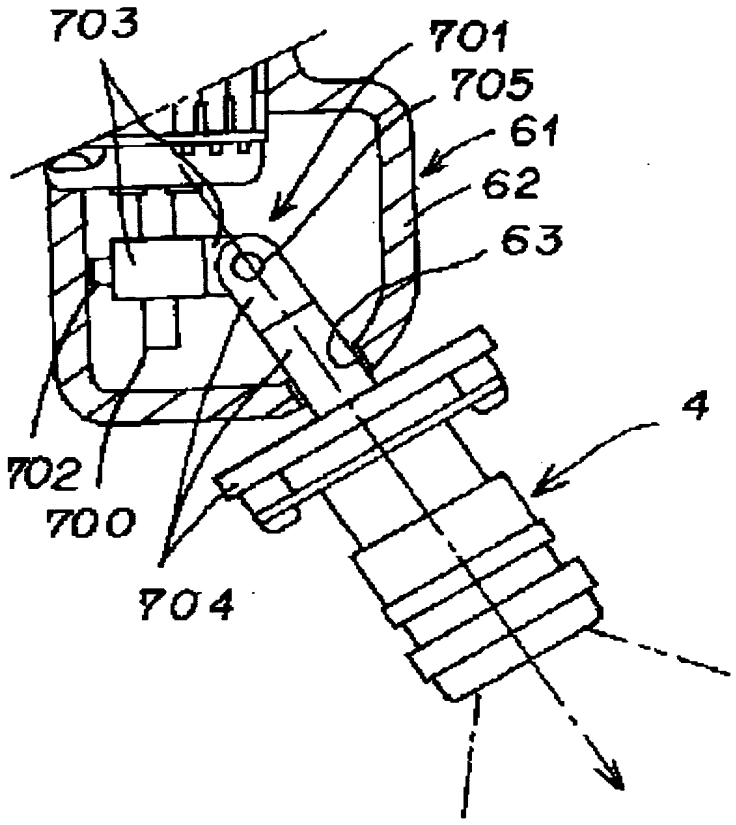
[Drawing 34]

[図34]



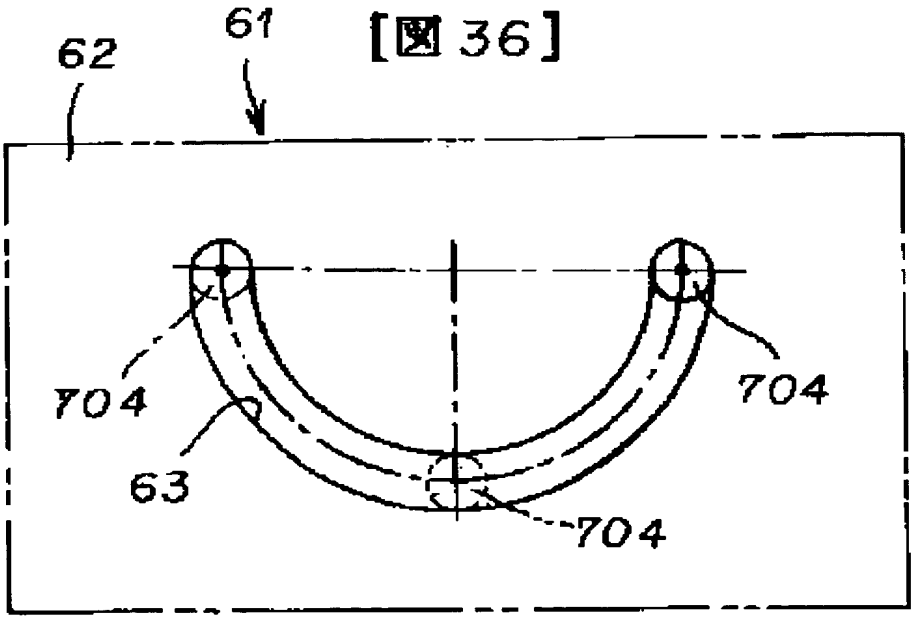
[Drawing 35]

【図35】



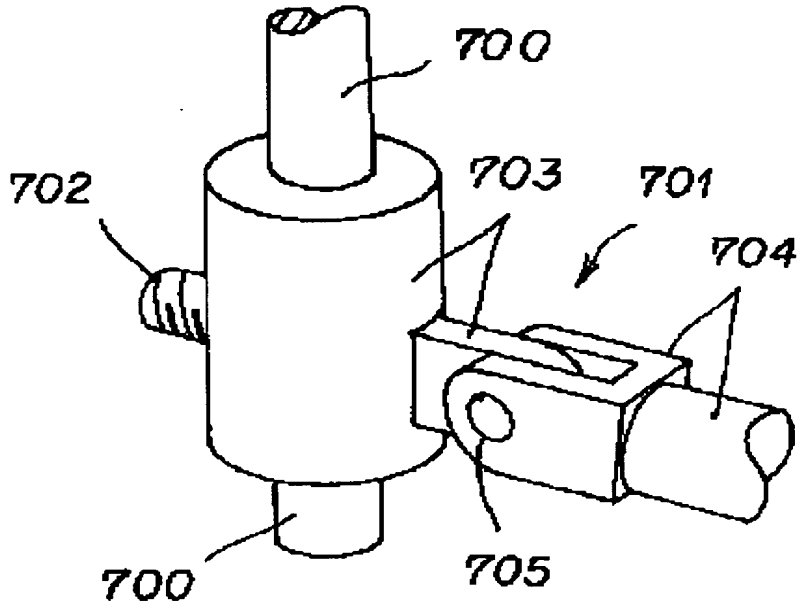
[Drawing 36]

【図36】



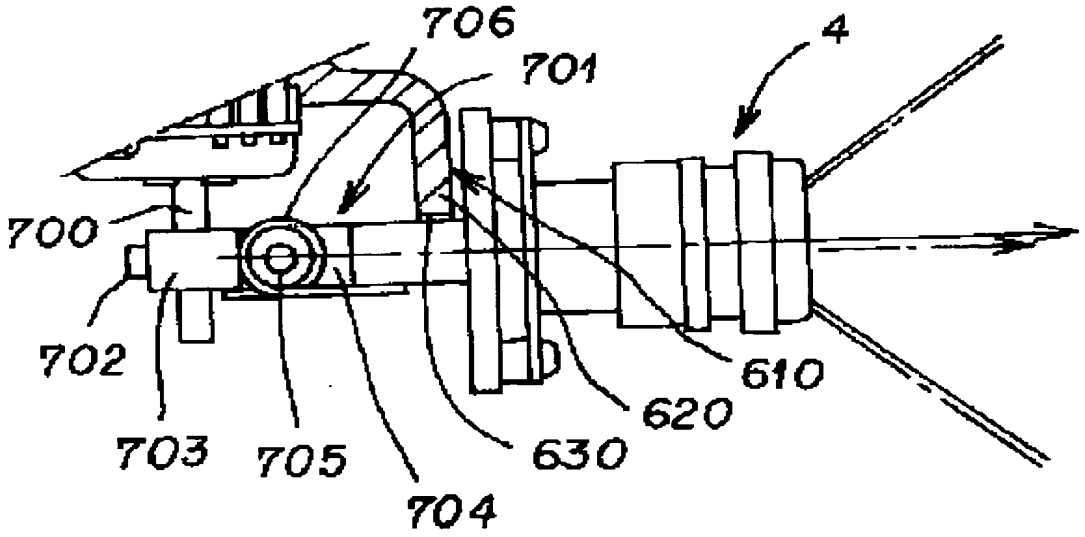
[Drawing 37]

[図37]

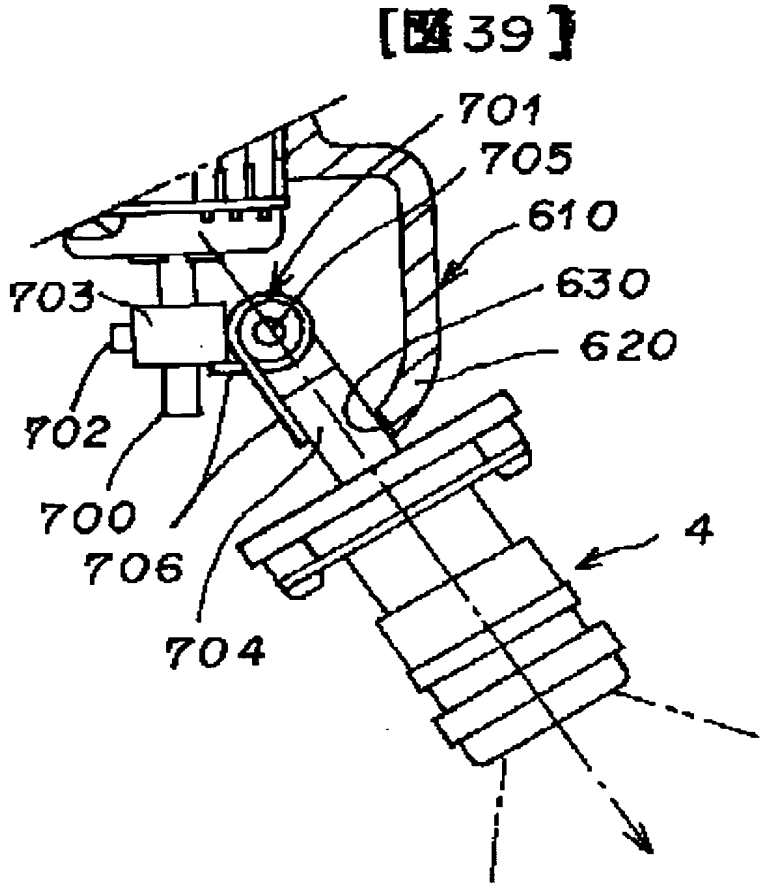


[Drawing 38]

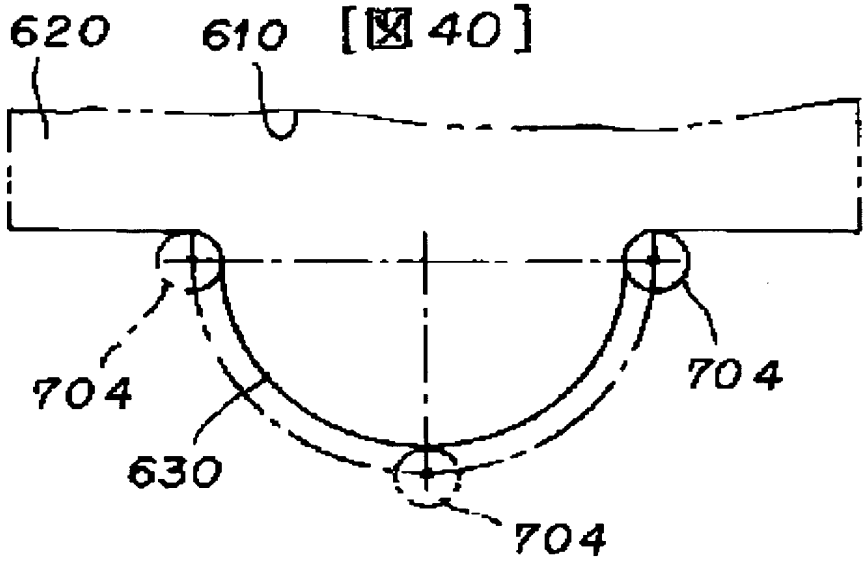
[図38]



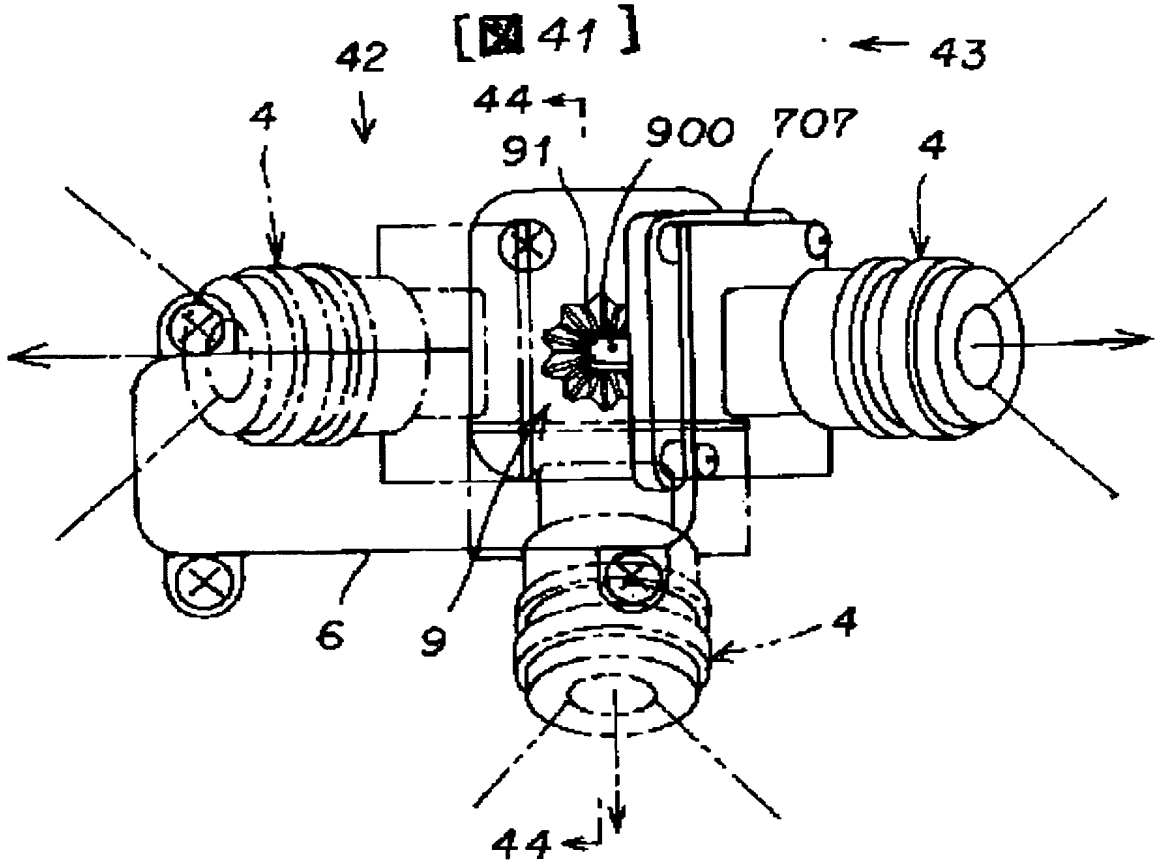
[Drawing 39]



[Drawing 40]

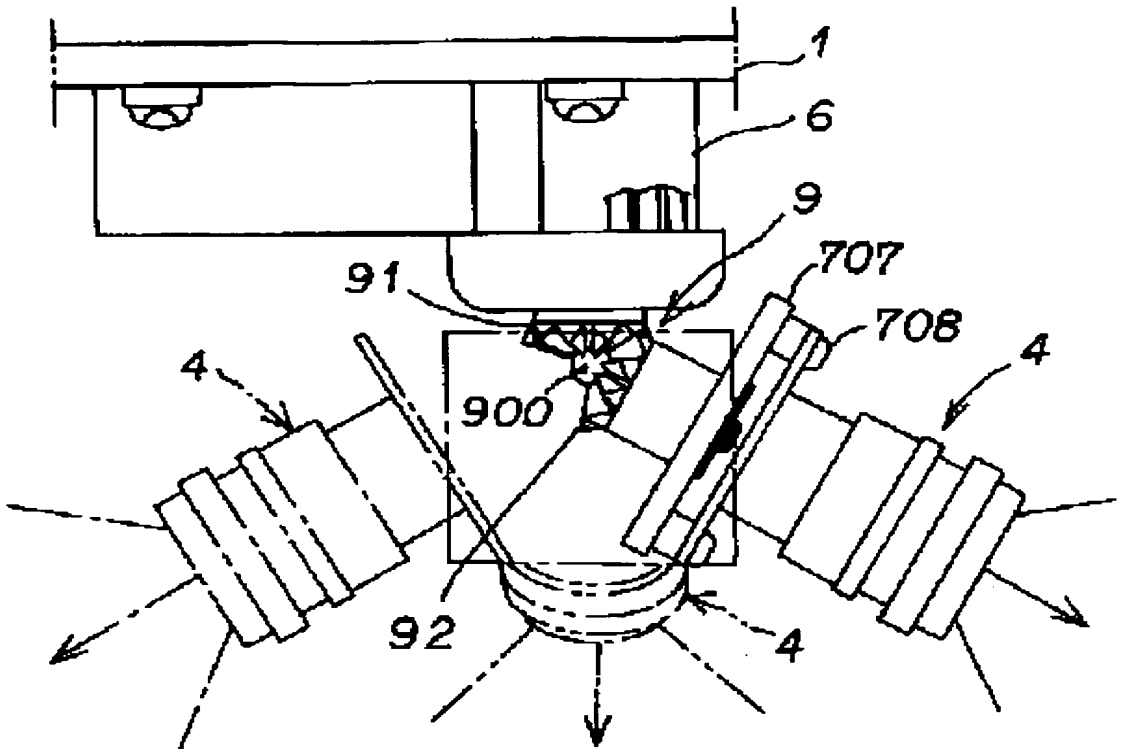


[Drawing 41]



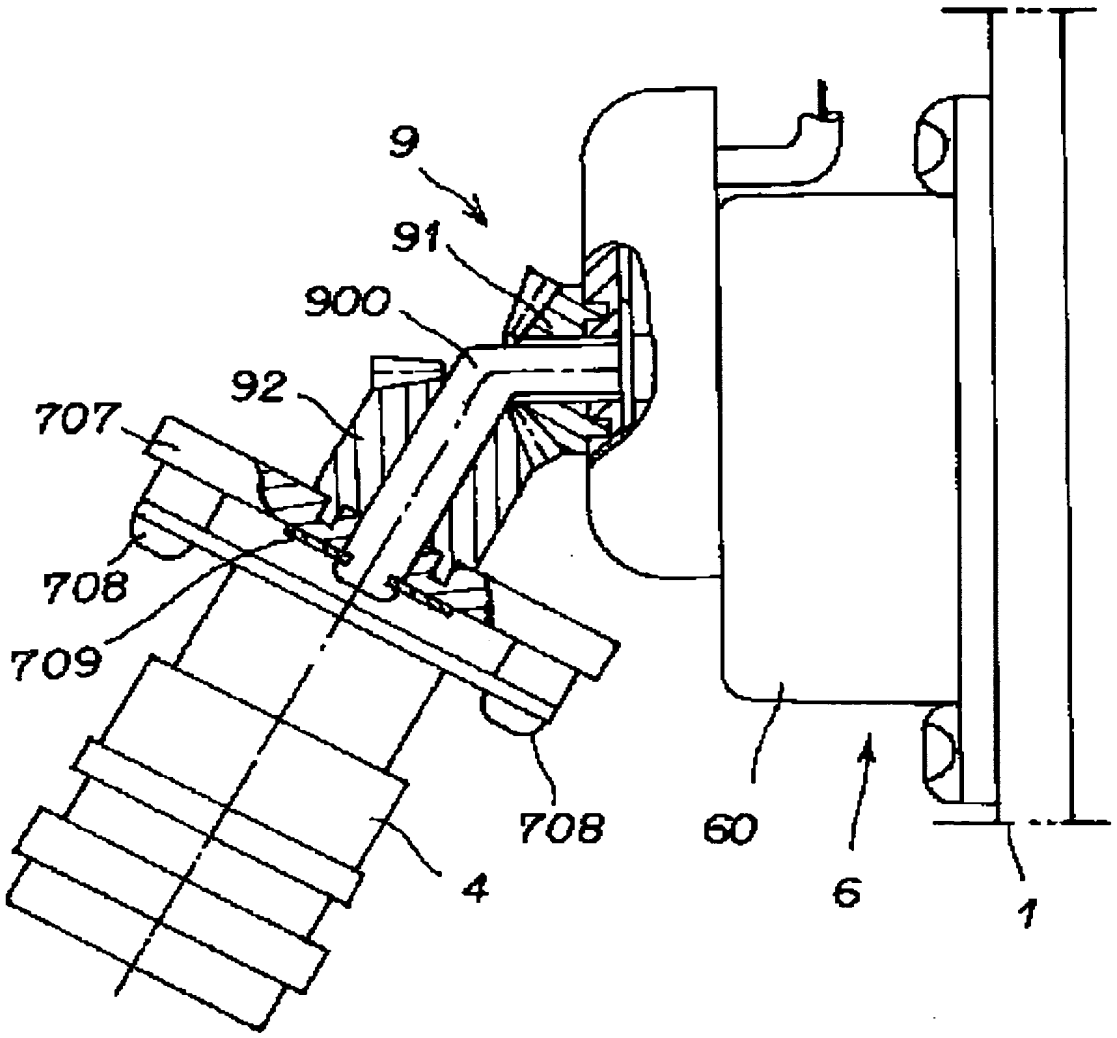
[Drawing 42]

[図42]

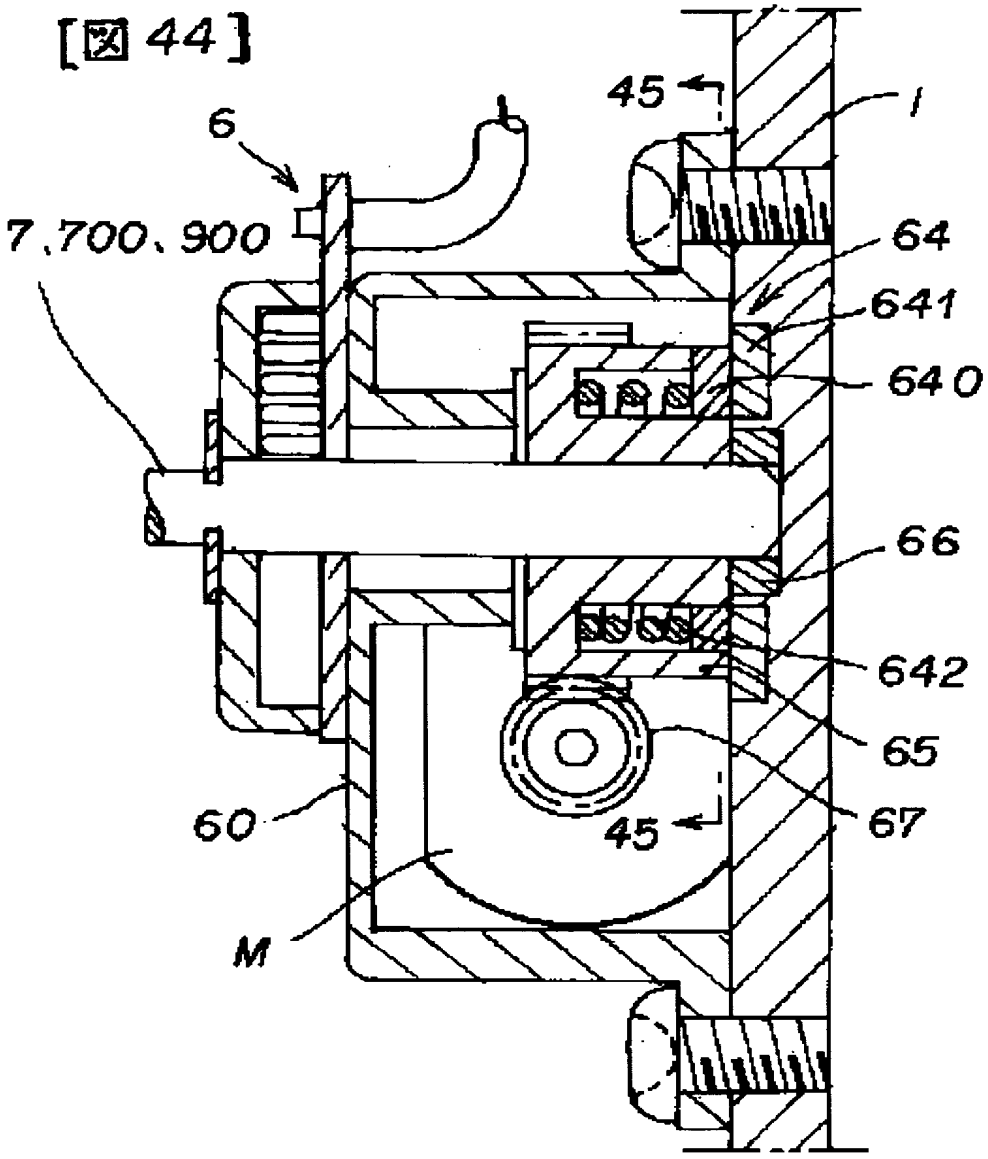


[Drawing 43]

[図43]

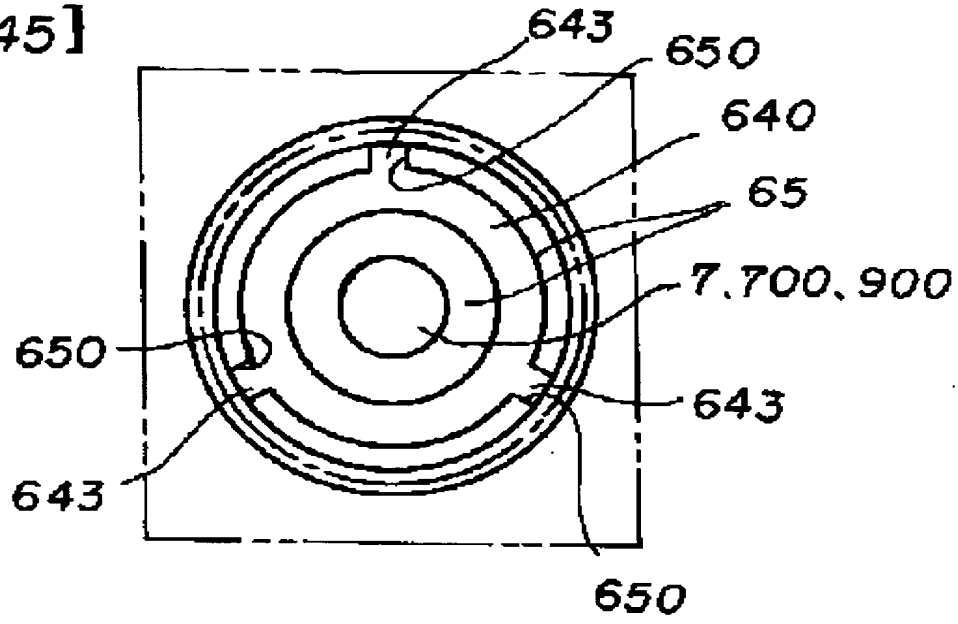


[Drawing 44]



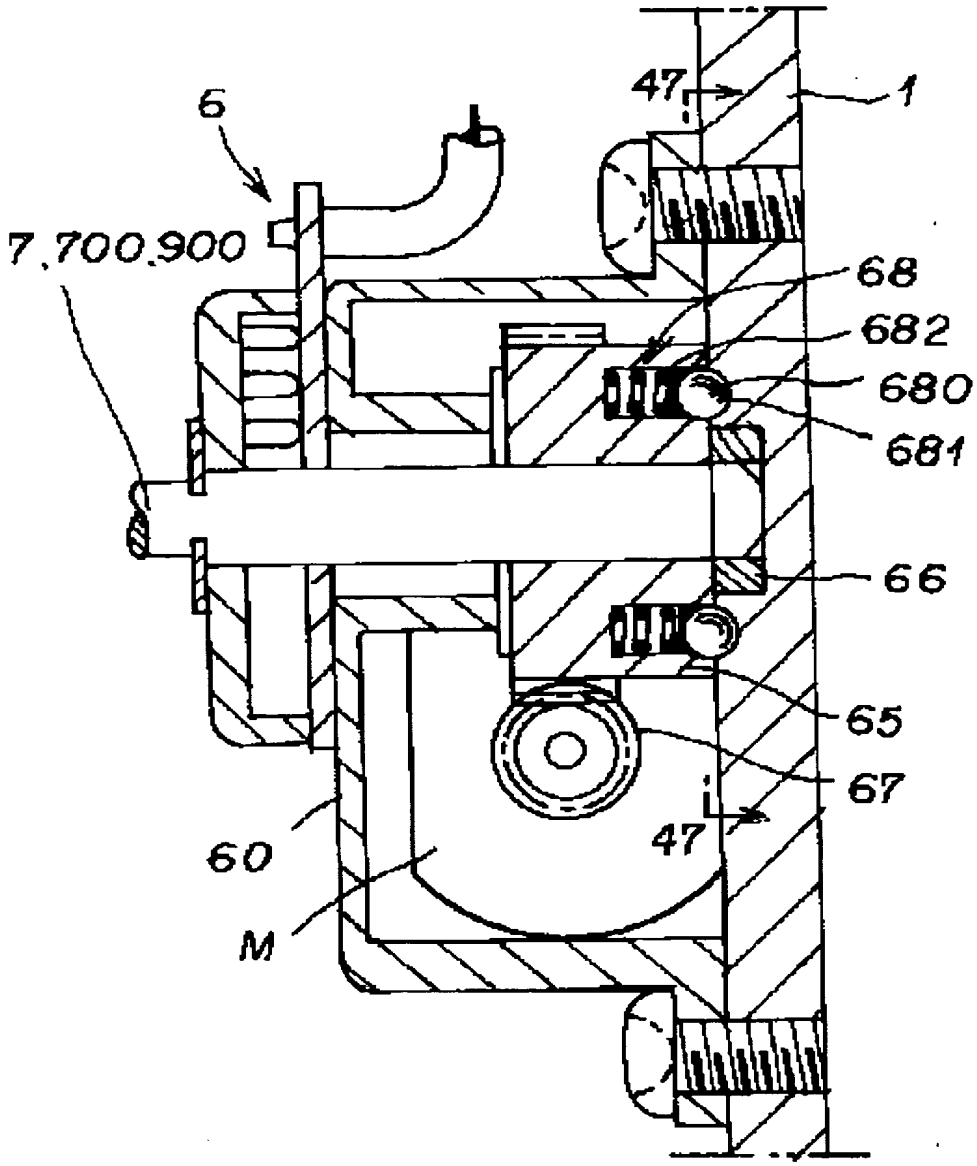
[Drawing 45]

[図 45]

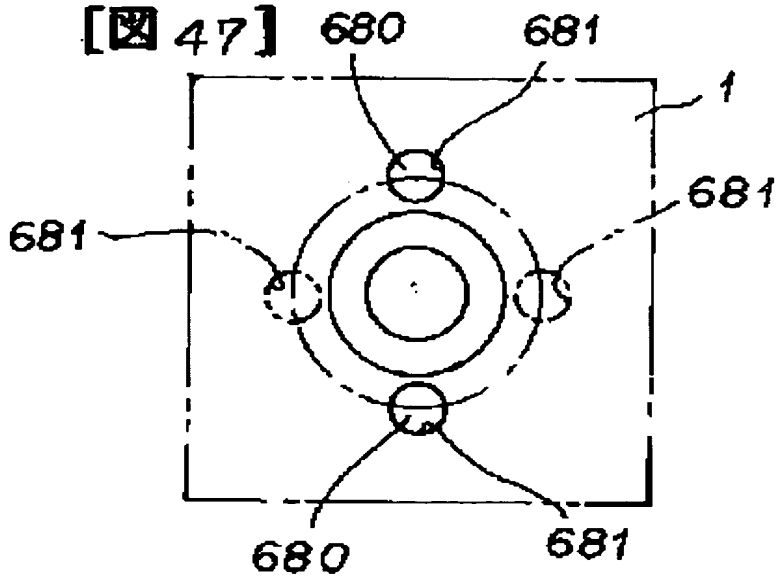


[Drawing 46]

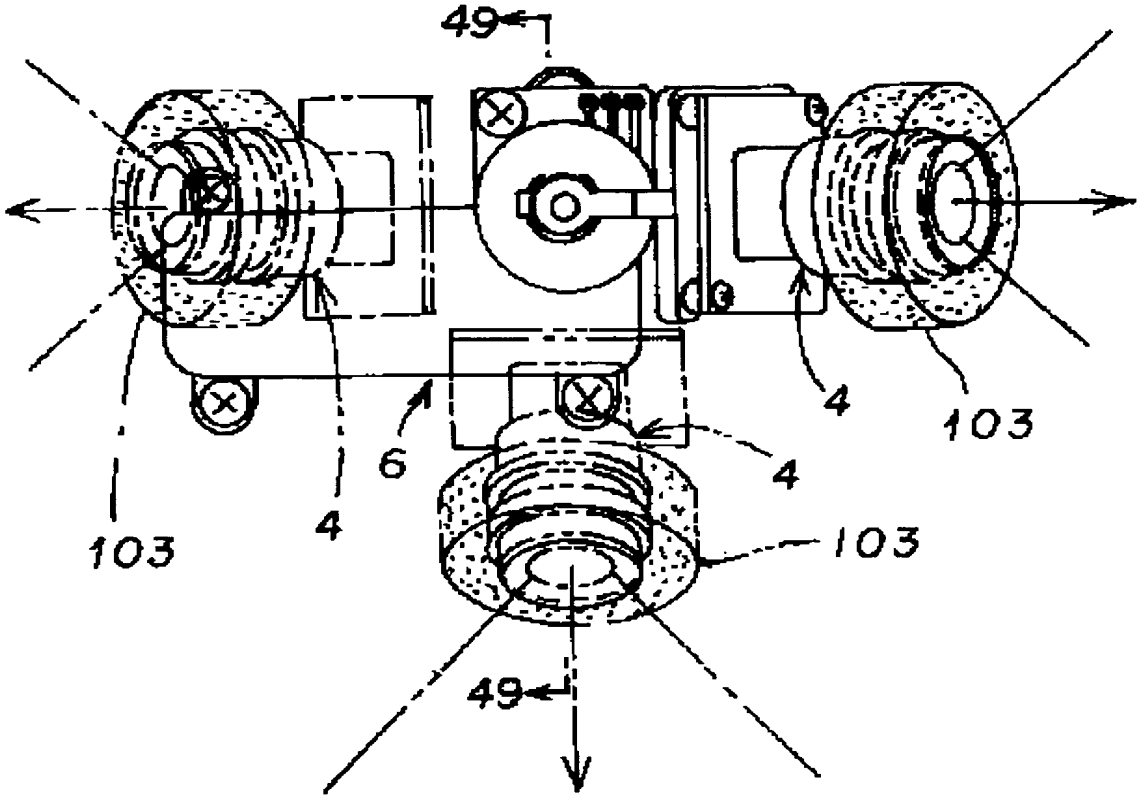
[図46]



[Drawing 47]

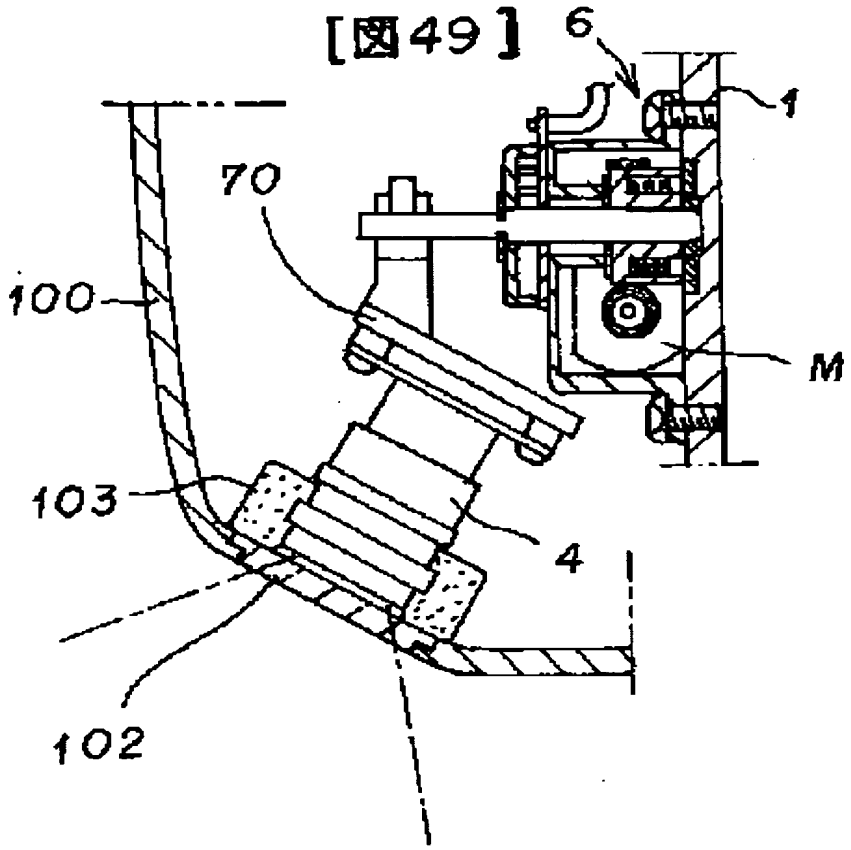


[Drawing 48]



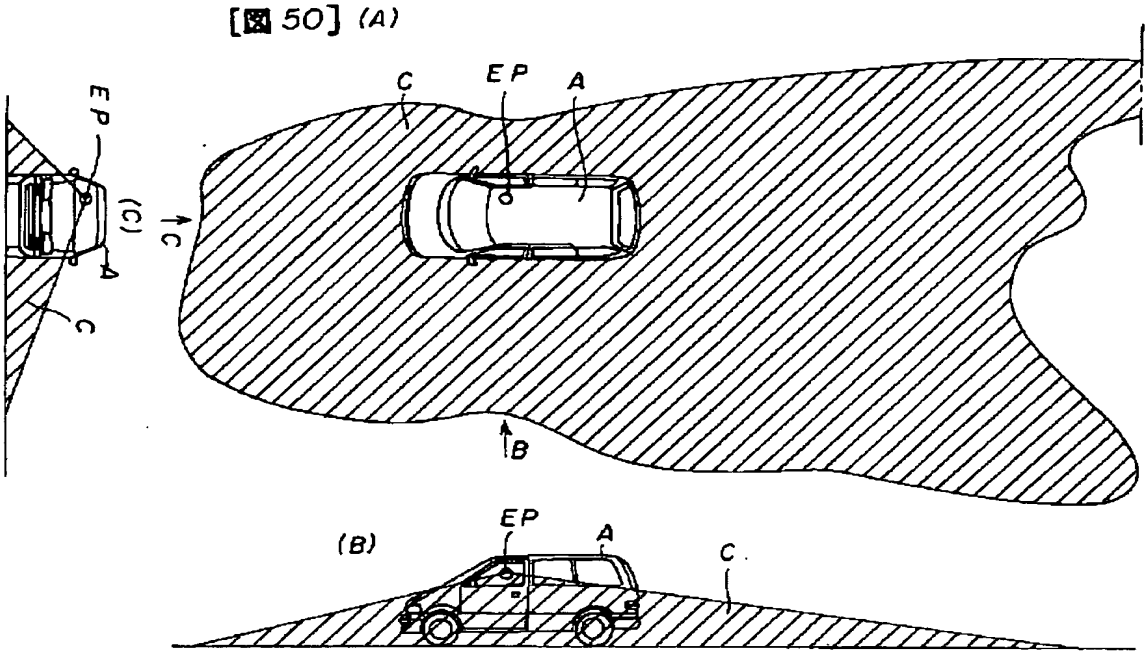
[Drawing 49]

[図49]

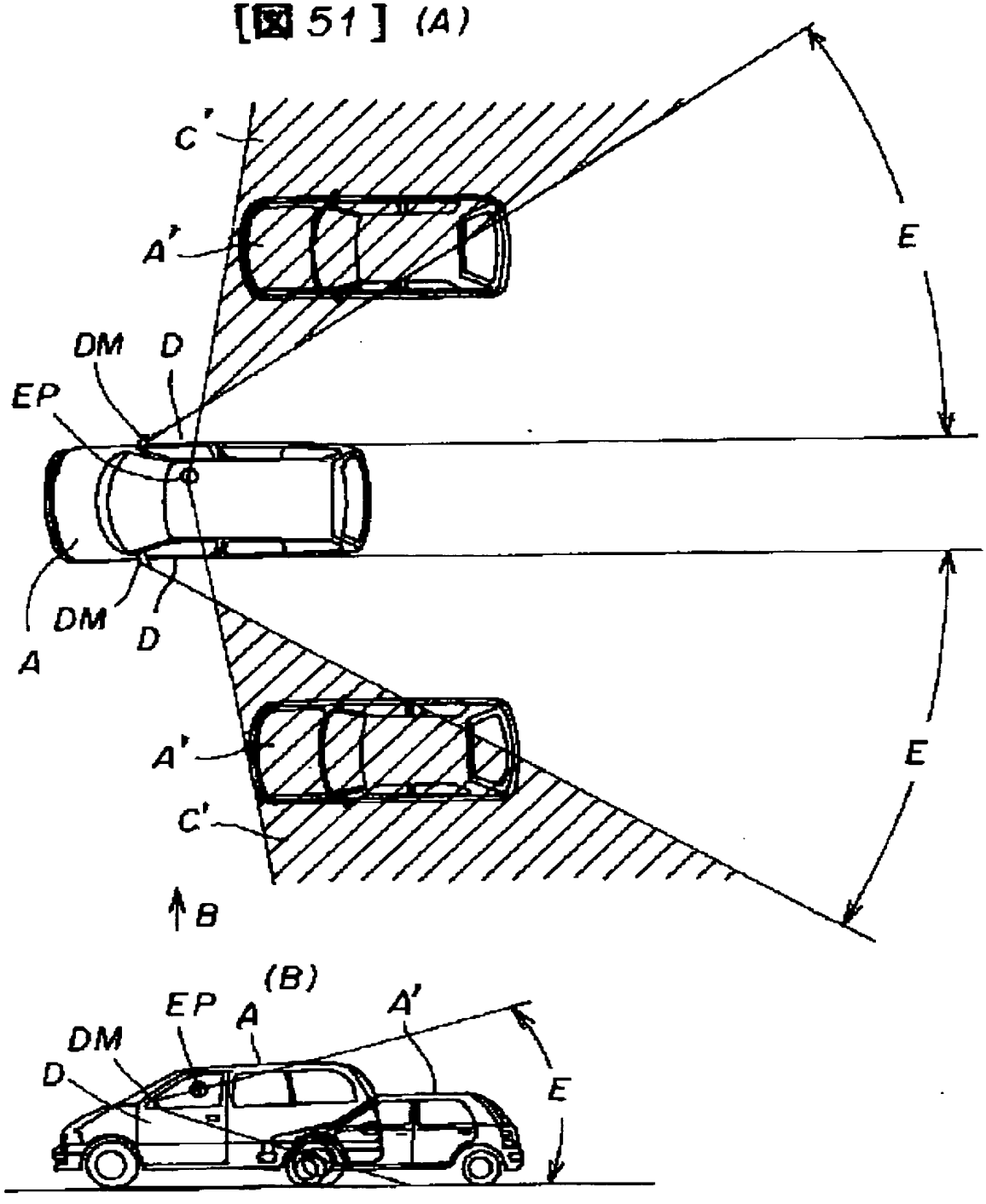


[Drawing 50]

[図 50] (A)



[Drawing 51]



DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is flat-surface explanatory drawing which showed the 1st operation gestalt of the circumference check equipment for automobiles of this invention, and expressed the check range.

[Drawing 2] It is side explanatory drawing showing the check range.

[Drawing 3] It is the side elevation of door mirror equipment and the circumference check equipment for automobiles of this invention.

[Drawing 4] It is the side elevation of the circumference check equipment for automobiles of this invention in the state where covering was removed.

[Drawing 5] It is the plan of a five views view in drawing 4 in the state where the mirror assembly was removed.

[Drawing 6] It is the side elevation of the circumference check equipment for automobiles of this invention.

[Drawing 7] It is the plan of a seven views view in drawing 6 .

[Drawing 8] It is the plan of switching equipment.

[Drawing 9] As for explanatory drawing of the screen of a monitoring device in case camera equipment is located in a front position, and (B), camera equipment of (A) is explanatory drawing of the screen of the monitoring device when being located in a back position.

[Drawing 10] It is the circuit diagram of the control circuit section when being located at the time at which camera equipment is located in a back position.

[Drawing 11] It is the circuit diagram of the control circuit section when camera equipment is rotating in the front position from the back position.

[Drawing 12] It is the circuit diagram of the control circuit section when camera equipment is located in a front position.

[Drawing 13] It is the circuit diagram of the control circuit section when camera equipment is rotating in the back position from the front position.

[Drawing 14] It is flat-surface explanatory drawing which showed the 2nd operation gestalt of the circumference check equipment for automobiles of this invention, and expressed the check range.

[Drawing 15] It is side explanatory drawing showing the check range.

[Drawing 16] It is the side elevation of door mirror equipment and the circumference

check equipment for automobiles of this invention.

[Drawing 17] It is the side elevation of the circumference check equipment for automobiles of this invention in the state where covering was removed.

[Drawing 18] It is the plan of a 18 views view in drawing 17 in the state where the mirror assembly was removed.

[Drawing 19] It is the side elevation of the circumference check equipment for automobiles of this invention.

[Drawing 20] It is the plan of a 20 views view in drawing 19 .

[Drawing 21] It is the plan of switching equipment.

[Drawing 22] As for explanatory drawing of the screen of a monitoring device in case, as for explanatory drawing of the screen of a monitoring device in case camera equipment is located in a front position, and (B), camera equipment is located in a lower part position, and (C), camera equipment of (A) is explanatory drawing of the screen of the monitoring device when being located in a back position.

[Drawing 23] It is the circuit diagram of the control circuit section when being located at the time at which camera equipment is located in a lower part position.

[Drawing 24] It is the circuit diagram of the control circuit section when camera equipment is rotating in the front position from the lower part position.

[Drawing 25] It is the circuit diagram of the control circuit section when camera equipment is located in a front position.

[Drawing 26] It is the circuit diagram of the control circuit section when camera equipment is rotating in the lower part position from the front position.

[Drawing 27] It is the circuit diagram of the control circuit section when camera equipment is rotating in the back position from the lower part position.

[Drawing 28] It is the circuit diagram of the control circuit section when camera equipment is located in a back position.

[Drawing 29] It is the circuit diagram of the control circuit section when camera equipment is rotating in the lower part position from the position.

[Drawing 30] It is the side elevation of the circumference check equipment for automobiles of this invention in the state where the 3rd operation gestalt of the circumference check equipment for automobiles of this invention was shown, and door mirror equipment and covering were removed.

[Drawing 31] It is the plan of a 31 views view in drawing 30 in the state where the mirror assembly was removed.

[Drawing 32] It is the side elevation of the circumference check equipment for automobiles of this invention.

[Drawing 33] It is the plan of a 33 views view in drawing 32 .

[Drawing 34] It is a 34–34 line cross section in drawing 33 .
[Drawing 35] It is a 35–35 line cross section in drawing 33 .
[Drawing 36] It is a 36–36 line development in drawing 33 .
[Drawing 37] a part of supporting structure — it is a perspective diagram
[Drawing 38] The modification of the 3rd operation gestalt of the circumference check equipment for automobiles of this invention is shown, and they are drawing 34 and a corresponding cross section.
[Drawing 39] They are drawing 35 and a corresponding cross section.
[Drawing 40] They are drawing 36 and a corresponding development.
[Drawing 41] The 4th operation gestalt of the circumference check equipment for automobiles of this invention is shown, and it is the side elevation of the circumference check equipment for automobiles of this invention.
[Drawing 42] It is the plan of a 42 views view in drawing 41 .
[Drawing 43] It is the rear view which 43 view view in drawing 41 fractured the part.
[Drawing 44] The 5th operation gestalt of the circumference check equipment for automobiles of this invention is shown, and it is a 44–44 line cross section in drawing 6 , drawing 19 , drawing 33 , and drawing 41 .
[Drawing 45] It is a 45–45 line view view in drawing 44 .
[Drawing 46] The 6th operation gestalt of the circumference check equipment for automobiles of this invention is shown, and it is a cross section corresponding to drawing 44 .
[Drawing 47] It is a 47–47 line view view in drawing 46 .
[Drawing 48] The 7th operation gestalt of the circumference check equipment for automobiles of this invention is shown, and it is the side elevation of the circumference check equipment for automobiles of this invention.
[Drawing 49] It is a 49–49 line cross section in drawing 48 .
[Drawing 50] The main dead angles around the automobile by viewing of a driver are shown, and side explanatory drawing [in / (A) / (A) and / in (B)] of B view view and (C) are transverse-plane explanatory drawings of C view view in (A). / flat-surface explanatory drawing
[Drawing 51] The main dead angles by check by looking of door mirror equipment are shown, and it is side explanatory drawing [in / (A) / A and / in (B)] of B view view. / flat-surface explanatory drawing
[Description of Notations]
1 [— The area pellucida, 103 / — Water absorption eradication member,] — The mirror base, 100 — Covering, 102 2 [— Camera equipment (image pck-up equipment),] — 3 A mirror assembly, 8 — The control circuit section, 4 5 [— The

guide section, 64 / — Friction clutch mechanism,] — A monitoring device, 6 — A mechanical component, 61,610 68 [— Supporting structure,] — A ball clutch mechanism, 7,700,900 — A rotation shaft, 70,701 9 [— An eye point, C, C' / — Dead angle,] — The posture orthodontic appliance, A — An automobile, EP D [— The range, F1, F2 F3, F4 which can be checked by looking with door mirror equipment / — The circumference check equipment for automobiles of this invention M / — A motor, H–H / — A horizontal axis, SW, SW' / — Control switch.] — A door, DM — Door mirror equipment, E